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PREVALENCE AND INCIDENCE OF VENEREAL DISEASES IN RICHMOND, VIRGINIA—WITH RECOMMENDATIONS.*

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For the purpose of determining the existing needs preliminary to a reorganization of the health program in Richmond, a committee composed of citizens particularly interested in health work was organized. As a basis for study, the committee used the Appraisal Form for City Health Work published by the Committee on Administrative Practice of the American Public Health Association. Venereal disease control was among the health measures studied. Using the Appraisal Form as a comparative yardstick, the work in the field of venereal diseases in Richmond was rated fifty-one out of a possible 100 points. This low rating challenged the sponsors of the original survey to action. State and local health departments, the Richmond Academy of Medicine, and the Council of Social Agencies requested the Public Health Service to establish the prevalence and incidence of venereal diseases by means of a procedure that has been applied in many representative areas throughout the United States, and, based on these findings, to make recommendations for a more effective venereal disease control program.

In response to this request the U. S. Public Health Service made a survey of all patients under observation or treatment in Richmond during the summer of 1936. There were 359 sources of treatment reporting in the city, 317 being private physicians. There are three clinics treating venereal diseases, the Mothers' and Children's Clinic (Venable Street Clinic), the City Jail, and the Out-Patient Clinic of the Medical College of Virginia. The first two clinics are held once a week, the one at the Medical College every week day (except Saturday) with evening clinics twice a week. The Medical College Clinic treats approximately 80 per cent of the public clinic cases. The college hospitals, the jail and the City Home have very limited hospital facilities for the treatment of cases requiring hospitalization. In general, the private institutions do not accept for hospitalization patients with infectious syphilis and gonorrhea. From Table 1 it will be noted that there is considerable difference in the proportion of cases of gonorrhea and syphilis under treatment by the private practitioner. The private physician treats two-thirds of the patients with gonorrhea and one-third of the patients with syphilis. Forty per cent of the cases of venereal disease reported are under the care of the private physician. From this same table comparative information is available for other surveyed localities in the United States. The surveys of the communities with which these data are compared were in most instances made before the depression. The shift in venereal disease cases toward the public clinic emphasizes the necessity for more adequate clinic facilities in every community.

DISTRIBUTION OF PATIENTS IN PRIVATE PRACTICE

Fifty-five per cent of the physicians of Richmond reported that they had no cases of syphilis and

*This survey was sponsored by R. W. Miller, M. D., President, Richmond Academy of Medicine, Basil B. Jones, M. D., Chairman of Committee on Relations with Preventive Medicine, Richmond Academy of Medicine, I. C. Riggin, M. D., Commissioner, State Department of Health, W. Brownley Foster, M. D., Director of Public Welfare, City of Richmond, Arthur A. Guild, Richmond Council of Social Agencies, and Miss Miriam H. Dettelbach, Secretary, Richmond Council of Social Agencies, F. J. Wampler, M. D., Out-Patient Department, Medical College of Virginia.

gonorrhea under treatment. One-half of the private patients were under treatment by 8 per cent of the physicians in Richmond. This apparent specialization in the treatment of venereal diseases in Richmond is common throughout the urban communities of the United States, a tendency which at first thought would seem especially helpful in the ultimate control of the disease. However, this concentration of treatment does not necessarily make the problem easier, for, while the treatment of the patients may be in the hands of a few physicians, the diagnosis is not. With the occurrence of 500,000 fresh infections of syphilis and 1,000,000 fresh infections of gonorrhea in the United States annually, every general practitioner is at some time required to make a diagnosis of syphilis or gonorrhea. Therefore, every physician should be able to recognize and have a sufficiently high index of suspicion to cause him to look for evidence of syphilis and gonorrhea. His responsibility does not end with the diagnosis. The first interview with the patient after the diagnosis has been established is a predominating influence and focuses the attention of the infected individual on the necessity for adequate treatment if he is to attain complete recovery. If syphilis and gonorrhea are to be brought under control, every physician in the community must lend his active support to the program.

TABLE 1.

A. PROPORTION OF CASES OF SYPHILIS AND GONORRHEA REPORTED UNDER TREATMENT OR OBSERVATION BY INDICATED SOURCES, IN RICHMOND, VIRGINIA

Source	Number of sources reporting	Percentage of cases reported		
		Syphilis	Gonorrhea	Syphilis and Gonorrhea
Private physicians	317	32.6	66.6	40.4
Public clinics	3	59.1	25.7	51.5
Hospitals and institutions	39*	8.3	7.7	8.1
Total	359	100.0	100.0	100.0

*Seventeen hospitals and twenty-two institutions.

B. PERCENTAGE OF CASES OF SYPHILIS AND GONORRHEA UNDER TREATMENT OR OBSERVATION BY PRIVATE PHYSICIANS AND IN PUBLIC CLINICS, IN SEVEN CITIES COMPARED WITH RICHMOND, VA.

City	Percentage of cases treated	
	By private physicians	In public clinics
Richmond, Va.	40.4	59.6
Knoxville, Tenn.	74.8	25.2
Dallas, Texas	62.3	37.7
Memphis, Tenn.	61.3	38.7
Nashville, Tenn.	53.2	46.8
New Orleans, La.	49.5	50.5
Cleveland, O.	49.4	50.6
Baltimore, Md.	28.0	72.0

PREVALENCE OF VENEREAL DISEASE

Syphilis. The term "prevalence" as used in this paper indicates the number of individuals who are actually under observation or treatment on any one day. Data are presented with the reservation that they represent only individuals actually under observation or treatment. There is a large though unknown number who fail to seek treatment during the early stages of their infection or else seek treatment from incompetent hands. Data[1] indicate that at least twice as many persons seek treatment across the drug store counter as come to an authorized source. The individuals who fail to seek treatment early make of syphilis an ever-increasing problem of the utmost importance to the health of the nation. In spite of the fact that there are individuals who ultimately attain a spontaneous "cure" of syphilis, 24 per cent according to Bruusgaard,[2] the potential danger early during the infection of these untreated individuals in spreading their disease and the tremendous economic loss due to the late crippling manifestations among the remaining 76 per cent untreated patients, compel all progressive physicians and health officers not only to make provision for the treatment of patients who cannot afford to pay but also to take the proper steps to require recalcitrant infected individuals to adhere to a treatment schedule until they have been rendered permanently noninfectious.

In Richmond there is an average of 922 cases of syphilis constantly under observation or treatment, or 5.0 per 1,000 population. Of these, 1.9 per 1,000 were admitted during the early stages of the disease and 3.1 per 1,000 failed to seek treatment until the infection had reached the late stages. Nothing could show more clearly the general neglect of treatment

1. Data from the files of American Social Hygiene Assoc., New York, N. Y.

2. Bruusgaard, E., Über das Schicksal der nicht spezifisch behandelten Luetiker. *Arch. f. Dermat. u. Syph.*, 1929, 167: 309.

for early syphilis than a comparison of these two rates. In the light of the tremendous number of individuals with syphilis who fail to seek authorized medical care, a comparison of the rate for early syphilis with that for late syphilis is a reasonable measure of the efficiency of a health department in bringing individuals to treatment during the infectious stage.

silent course of early syphilis in females in whom the disease frequently is not recognized until the patient is examined for some other cause or is subjected to a routine blood test. Routine serologic surveys in rural southern areas among 33,000 Negroes[4] indicate that one out of every five is infected with syphilis, yet the one-day surveys reveal that less than one out of ten Negroes infected with

TABLE 2.

A. PREVALENCE OF SYPHILIS AND GONNORRHEA BY STAGE OF DISEASE AND BY SEX AND COLOR OF THE PATIENT, IN RICHMOND, VIRGINIA

Sex and color		Syphilis						Gonorrhea					
		Number of cases			Rate per 1,000 population			Number of cases			Rate per 1,000 population		
		Early	Late	Total	Early	Late	Total	Acute	Chronic	Total	Acute	Chronic	Total
Male	White	93	113	206	1.5	1.8	3.3	96	34	130	1.6	.5	2.1
	Black	106	143	249	4.3	5.9	10.2	37	27	64	1.5	1.1	2.6
	Total	199	256	455	2.3	3.0	5.3	133	61	194	1.6	.7	2.3
Female	White	59	84	143	.9	1.2	2.1	50	22	72	.7	.3	1.0
	Black	93	231	324	3.2	8.1	11.3	18	16	34	.6	.6	1.2
	Total	152	315	467	1.6	3.2	4.8	68	38	106	.7	.4	1.1
Total	White	152	197	349	1.2	1.5	2.7	146	56	202	1.1	.4	1.5
	Black	199	374	573	3.7	7.1	10.8	55	43	98	1.0	.8	1.8
	Total	351	571	922	1.9	3.1	5.0	201	99	300	1.1	.5	1.6

B. COMPARISON OF THE PREVALENCE OF SYPHILIS AND GONORRHEA IN RICHMOND, VIRGINIA, WITH THAT OF THIRTY-EIGHT SURVEYED COMMUNITIES, BY COLOR OF THE PATIENT

Infection	Richmond, Virginia						38 Survey Communities					
	Number of cases			Rate per 1,000 population			Number of cases			Rate per 1,000 population		
	Total	White	Black	Total	White	Black	Total	White	Black	Total	White	Black
Syphilis and gonorrhea	1,222	551	671	6.6	4.2	12.6	93,028	63,392	29,636	9.3	8.5	11.8
Syphilis	922	349	573	5.0	2.7	10.8	54,416	33,335	21,081	5.4	4.5	8.4
Gonorrhea	300	202	98	1.6	1.5	1.8	38,612	30,057	8,555	3.9	4.0	3.4

Table 3 permits a comparison of this ratio of early to late cases in Richmond with that of other communities. It will be noted throughout this table that the rate of infection among the Negro population is largely responsible for the relatively high rate in localities where the Negro represents a significant percentage of the population. The neglect of treatment until after syphilis reaches the late stages is especially noticeable among Negroes. Twice as many come for treatment only after the disease reaches the late stage as come during the early stage. This is true of both Negro males and females and a little more predominant among the females. As Moore[3] states, this is possibly an indication of the

syphilis in the United States seeks authorized medical care. For these reasons the 922 patients with syphilis who are constantly under observation and treatment in Richmond represent the minimum number of individuals in need of treatment.

Gonorrhea. An average of only 300 cases of gonorrhea was reported as constantly under treatment or observation in the city of Richmond, or 1.6 per 1,000 population. It cannot be assumed that

3. Moore, J. E., Cole, H. N., O'Leary, P., Stokes, J. H., Wile, U. J., Clark, T., Parran, T., Jr., and Usilton, L. J., Cooperative Clinical Studies in the Treatment of Syphilis. The Treatment of Latent Syphilis. I. General Considerations. *Ven. Dis. Inform.*, 1932, 13: 355, 325.

4. Clark, T., The Control of Syphilis in Southern Rural Areas. Published by Julius Rosenwald Fund. Chicago, 1932.

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the prevalence of gonorrhea is only a third of that for syphilis, or even that the disease is less widespread. It is interesting, however, to note that a higher proportion of patients with acute gonorrhea seek treatment than delay treatment until the chronic manifestations develop. A comparison of these rates in Richmond with a composite rate for thirty-eight communities throughout the United States (Table 2B) where the proportion of colored population is relatively high, emphasizes the indifference with which this infection is regarded both by those infected and those who provide for its treatment in Richmond. The proportionately higher prevalence rate for the Negro race noted for syphilis, disappears in the prevalence rate for gonorrhea. Probably this condition is due to the disregard of the Negro for a gonorrheal infection. Perhaps it is due to the more limited clinic facilities for the treatment of gonorrhea. Among the colored population of Richmond the prevalence rate for syphilis is 29 per cent higher than for other comparable communities, while the prevalence rate for gonorrhea is 47 per cent lower, thus indicating that the diagnosis and treatment of gonorrhea among the colored population at least is seriously neglected.

TABLE 3.

COMPARATIVE PREVALENCE RATES FOR SYPHILIS AND GONORRHEA BY STAGE OF DISEASE AND BY COLOR OF THE PATIENT, IN RICHMOND, VIRGINIA, AND IN REPRESENTATIVE COMMUNITIES THROUGHOUT THE UNITED STATES

Communities (Over 100,000 population)	Per cent of white and colored population	Case rates per 1,000 population						
		Syphilis			Gonorrhea			Grand Total
		Early	Late	Total	Acute	Chronic	Total	
		White						
Richmond, Va.	71.0	1.2	1.5	2.7	1.1	.4	1.5	4.2
Memphis, Tenn.	62.3	2.9	4.6	7.5	5.5	4.0	0.5	17.0
Dallas, Texas	85.1	3.9	4.1	8.0	3.6	3.9	7.5	15.4
Nashville, Tenn.	69.9	2.8	4.3	7.1	3.3	2.6	5.9	13.0
Birmingham and Jefferson Co., Ala.	61.1	2.2	2.8	5.0	3.0	2.1	5.1	10.1
St. Louis and 5 Counties in Mo.	92.2	1.7	3.9	5.6	2.7	2.4	5.1	10.7
Baltimore and 5 Counties in Md.	83.4	.8	2.6	3.4	1.1	1.5	2.6	6.0
New Orleans, La.	71.7	1.5	2.4	3.8	2.9	1.9	4.8	8.6
Knoxville, Tenn.	85.5	2.1	2.4	4.5	2.2	2.0	4.2	8.7
Cleveland, Ohio	93.4	.8	3.0	3.9	1.2	1.4	2.7	6.5
		Black						
Richmond, Va.	29.0	3.7	7.1	10.8	1.0	.8	1.8	12.6
Memphis, Tenn.	37.7	3.5	12.8	16.4	2.7	5.6	8.3	24.6
Dallas, Texas	14.9	4.1	10.1	14.2	2.4	7.9	10.3	24.5
Nashville, Tenn.	30.1	6.5	10.3	16.8	1.6	2.3	3.8	20.6
Birmingham and Jefferson Co., Ala.	38.9	2.0	9.7	11.7	1.7	2.4	4.1	15.8
St. Louis and 5 Counties in Mo.	7.8	3.6	13.1	16.6	3.4	3.8	7.3	23.9
Baltimore and 5 Counties in Md.	16.6	4.9	22.7	27.6	1.9	5.1	7.1	34.7
New Orleans, La.	28.3	4.3	6.7	10.9	2.3	2.1	4.4	15.3
Knoxville, Tenn.	14.5	2.9	4.9	7.8	2.0	2.3	4.3	12.1
Cleveland, Ohio	6.6	5.7	20.1	25.9	1.9	2.2	4.2	30.0
		Total						
Richmond, Va.	100.0	1.9	3.1	5.0	1.1	.5	1.6	6.6
Memphis, Tenn.	100.0	3.2	7.7	10.9	4.5	4.6	9.0	19.9
Dallas, Texas	100.0	3.9	5.0	8.9	3.4	4.5	7.8	16.8
Nashville, Tenn.	100.0	3.9	6.1	10.0	2.7	2.5	5.3	15.2
Birmingham and Jefferson Co., Ala.	100.0	2.1	5.5	7.6	2.5	2.2	4.7	12.3
St. Louis and 5 Counties in Mo.	100.0	1.9	4.6	6.4	2.8	2.5	5.3	11.7
Baltimore and 5 Counties in Maryland	100.0	1.5	5.9	7.4	1.3	2.1	3.3	10.8
New Orleans, La.	100.0	2.3	3.6	5.8	2.7	2.0	4.7	10.5
Knoxville, Tenn.	100.0	2.2	2.7	5.0	2.2	2.0	4.2	9.2
Cleveland, Ohio	100.0	1.2	4.1	5.3	1.3	1.5	2.8	8.1

INCIDENCE OF VENEREAL DISEASES

Syphilis. The term "incidence" as used in this paper denotes the number of fresh infections that occur within a specified period of time. Although the data are presented for a period of a year, they are based on information obtained during a period of only four months. Since there is apparently no

TABLE 4.

A. ANNUAL INCIDENCE OF SYPHILIS AND GONORRHEA BY STAGE OF DISEASE AND BY SEX AND COLOR OF THE PATIENT, IN RICHMOND, VIRGINIA

Sex and color		Syphilis						Gonorrhea						Grand Total	
		Annual Number of new cases			Rate per 1,000 population			Annual Number of new cases			Rate per 1,000 population			Number of cases	Rate per 1,000 population
		Early	Late	Total	Early	Late	Total	Acute	Chronic	Total	Acute	Chronic	Total		
Male	White	252	192	444	4.1	3.1	7.2	996	180	1,176	16.3	2.9	19.2	1,620	26.4
	Black	360	432	792	14.8	17.7	32.5	528	240	768	21.7	9.8	31.5	1,360	64.0
	Total	612	624	1,236	7.1	7.3	14.4	1,524	420	1,944	17.8	4.9	22.7	3,180	37.1
Female	White	168	156	324	2.5	2.3	4.8	360	108	468	5.2	1.6	6.8	792	11.6
	Black	240	492	732	8.4	17.2	25.6	204	108	312	7.1	3.8	10.9	1,044	36.5
	Total	408	648	1,056	4.2	6.7	10.9	564	216	780	5.8	2.2	8.0	1,836	18.9
Total	White	420	348	768	3.2	2.7	5.9	1,356	288	1,644	10.4	2.2	12.6	2,412	18.5
	Black	600	924	1,524	11.3	17.4	28.7	732	348	1,080	13.8	6.6	20.4	2,604	49.1
	Total	1,020	1,272	2,292	5.6	6.9	12.5	2,088	636	2,724	11.4	3.5	14.9	5,016	27.4

B. COMPARISON OF THE ANNUAL INCIDENCE OF SYPHILIS AND GONORRHEA IN RICHMOND, VIRGINIA, WITH THAT OF TWENTY-NINE SURVEYED COMMUNITIES, BY COLOR OF THE PATIENT

Infection	Richmond, Virginia						29 selected cities in the United States					
	Annual number of new cases			Rate per 1,000 population			Annual number of new cases			Rate per 1,000 population		
	Total	White	Black	Total	White	Black	Total	White	Black	Total	White	Black
Syphilis and gonorrhea	5,016	2,412	2,604	27.4	18.5	49.1	162,684	123,288	39,396	29.4	25.9	50.6
Syphilis	2,292	768	1,524	12.5	5.9	28.7	70,860	48,276	22,584	12.8	10.1	29.0
Gonorrhea	2,724	1,644	1,080	14.9	12.6	20.4	91,824	75,012	16,812	16.6	15.8	21.6

NOTE: The annual incidence of syphilis in Richmond is based on the monthly average number of cases that came for treatment for the first time from February 1 to May 31, 1936, multiplied by 12; and the annual incidence of gonorrhea is based on the number of cases that came for treatment for the first time during May, 1936, multiplied by 12.

seasonal variation in the venereal diseases, an average of a series of months within the year can reasonably be used as a basis for an annual incidence rate for the community. In Table 4A the incidence of syphilis in Richmond is given. One thousand and twenty individuals in Richmond acquire syphilis each year and an additional 1,272 seek treatment during the year who previously had neglected their infection until the late manifestations developed. Although only 29 per cent of the population of Richmond is Negro, more than one-half of the syphilis patients under treatment belong to this race. There is five times as much syphilis among the Negro as among the white population of Richmond. The incidence of syphilis among the white population of Richmond is lower than a composite rate for twenty-nine communities throughout the United States (Table 4B) but we cannot be too encouraged by such a finding in a disease that claims at least

768 new victims each year in a population group of 130,000 white persons.

Gonorrhea. There are 2,724 patients with gonorrhea who seek treatment each year in Richmond (Table 4A). More than twice as many males come for treatment as females. This is true for both the white and the colored. The proportion of patients with gonorrhea who seek treatment is quite different from that of syphilis. Although proportionately five times as many colored patients with syphilis were found under treatment as white patients, less than twice as many colored patients were under treatment for gonorrhea as white patients. This contrast simply indicates the neglect of treatment for gonorrhea.

ECONOMIC STATUS

The economic status of the patients with venereal diseases is of interest. The clinics of Richmond through their social service departments attempt to limit admissions to the clinic to those individuals who are not able to pay for treatment of syphilis at private rates. Most individuals prefer treatment by a private physician even though only a small proportion can pay for such services. This tendency on the part of the patient usually places the costly burden of treatment on the private physician, thus relieving the local health authorities of their proper financial responsibility. A third of the patients who were treated by private practitioners were classified by the physician as "poor" and in a number of instances one of the writers (L. J. U.) was informed by the physicians that many patients, who were not classified as "poor," did not have sufficient funds to defray the cost of treatment. It is believed, however, that a higher percentage of patients in the lower economic groups can afford to pay for treatment of gonorrhea than can pay for the much more expensive and prolonged treatment of syphilis.

THE AGE OF INFECTION

In the organization of an adequate control program for syphilis it is important to determine the age incidence of the infection in a community. Recent studies[5] have indicated that at least one hundred thousand of the five hundred thousand individuals annually infected with syphilis in the United States acquire the infection before they have reached the age when their earning capacity is sufficient to enable them to pay for treatment. One hundred thousand individuals in this country annually acquire syphilis between the ages of 13 and 20, and 11,000 contract the disease between the ages of 11 and 15. Among 1,020 patients with early syphilis who sought treatment in the city of Richmond, 527, or one-half, occurred before the individual reached the age of 25. The high incidence of syphilis in young adults in Richmond is roughly comparable to that found in other surveyed areas (Table 5). A relatively earlier age of infection among females is apparent. This early age of in-

TABLE 5.

ANNUAL INCIDENCE RATES PER 1,000 POPULATION FOR WHITE AND BLACK MALES AND FEMALES, BY AGE AT TIME OF ACQUIRING SYPHILIS, IN RICHMOND AS COMPARED WITH A REPRESENTATIVE AREA IN THE UNITED STATES

Patient's age at time of acquiring infection	Annual incidence rates per 1,000 population							
	White				Black			
	Males		Females		Males		Females	
	Richmond	Representative area in U. S.	Richmond	Representative area in U. S.	Richmond	Representative area in U. S.	Richmond	Representative area in U. S.
11-15	.3	.3	.5	.9	4.0	2.9	4.9	5.7
16-20	1.8	5.5	4.7	5.8	13.8	33.6	24.6	30.9
21-25	13.8	15.0	8.1	6.6	60.7	48.2	25.3	23.7
26-30	14.2	14.5	6.8	4.3	70.5	41.5	18.2	10.6
31-35	5.6	10.9	3.0	2.5	29.7	18.6	14.6	5.3
36-45	7.2	4.3	2.3	1.2	13.2	9.2	3.7	2.7
46-55	2.1	1.9	.4	.6	5.3	3.9	1.0	.3
56-65	3.0	.8	--	.3	--	--	--	--
Over 65	3.4	.2	--	.1	--	--	--	--
Total annual incidence rates	4.1	5.0	2.5	2.2	14.8	16.0	8.4	9.1

5. Usilton, L. J., Trend of Syphilis and Gonorrhea in the United States. *Ven. Dis. Inform.*, 1935, 16: 147.

fection is one of the principal obstacles in the control of the disease. It is particularly difficult to devise an educational program that will reach these individuals. In Richmond this phase of the control program has apparently been very much neglected. It is urged that whatever action is taken along educational lines, full cognizance be given to the early age at which the disease is acquired. An educational program that does not reach individuals during adolescence will fail.

TABLE 6.

AMOUNT OF ARSPHENAMINE WITH APPROPRIATE HEAVY METAL ADMINISTERED TO PATIENTS WITH EARLY AND LATE SYPHILIS BY PRIVATE PHYSICIANS AND IN THE SYPHILIS CLINIC OF THE MEDICAL COLLEGE OF VIRGINIA IN RICHMOND

Number of injections of an arsenical with appropriate heavy metal	Patients with syphilis treated—					
	By private physicians		In syphilis clinic Medical College of Virginia		Total	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
	Early syphilis					
Less than 20	219	91.3	285	83.8	504	86.9
20 or more	21	8.7	55	16.2	76	13.1
Total	240	100.0	340	100.0	580	100.0
	Late syphilis					
Less than 20	229	84.8	426	81.5	655	82.6
20 or more	41	15.2	97	18.5	138	17.4
Total	270	100.0	523	100.0	793	100.0
	Total					
Less than 20	448	87.8	711	82.4	1,159	84.4
20 or more	62	12.2	152	17.6	214	15.6
Total	510	100.0	863	100.0	1,373	100.0

THE INFLATION OF PREVALENCE RATES WITHIN URBAN COMMUNITIES BY THE INCLUSION OF RURAL PATIENTS.

In any city it is impossible to conduct a successful program if an attempt is made to limit admissions to the treatment facilities to the residents of the city. Some provision must be made whereby those in the surrounding rural area may also be treated. In places where steps have been taken to exclude outsiders from the clinics, it has been found that patients resort to subterfuge to secure treatment. Fortunately in Richmond no effort is made to exclude from public clinics individuals from the surrounding territory. These individuals represent 10 per cent of the local treatment problem.

TREATMENT

Less than one out of every five syphilitic patients who seek treatment in Richmond from either the public clinic or the private practitioner remains under treatment for a sufficient length of time to be rendered permanently noninfectious. There is a limited social service follow-up under the Director of Public Welfare but this service is too understaffed to be effective. Since the private physician fails to report his cases to the city health officer as authorized by law, no current data are available on the number of delinquent patients treated by the private physician. The city health officer does not make available to local clinics and physicians a system of modern epidemiologic investigation of recently infected patients.

It will be noted in Table 6 that among the early syphilitic patients approximately one in ten of those privately treated and two in ten of those treated in public clinics received 20 or more doses of arsphenamine with interim heavy metal. Since 82 per cent of the infectious types of relapse occur among patients with inadequately treated syphilis, it is extremely important that proper measures be instituted so that all patients may be held until adequate treatment has been administered.

At the time of the present survey only 61 pregnant women had been under treatment during the period of their pregnancy, and only 38 per cent of these had had more than 10 injections of arsphenamine with interim heavy metal. This is scarcely a

sufficient number to establish completely the efficiency of this measure of control.

CONCLUSIONS

1. There was in Richmond an average of 922 cases of syphilis constantly under observation or treatment, or 5.0 per 1,000 population; and an average of 300 cases of gonorrhea, or 1.6 per 1,000 population.

2. Forty per cent of the patients with venereal disease were in the hands of private physicians. This percentage is lower than in six cities surveyed previous to the depression; however, it is much higher than that for the City of Baltimore. In Richmond the percentage of cases under private care was 67 for gonorrhea and 33 for syphilis.

3. Fifty-five per cent of the physicians of Richmond reported no cases. One-half of the private cases were under treatment by 8 per cent of the physicians of Richmond. The concentration of patients in the hands of a few physicians does not necessarily make the treatment problem easier, for with 500,000 new infections of syphilis annually in the United States and over a million new cases of gonorrhea, every general practitioner is at some time required to make a diagnosis of syphilis or gonorrhea.

4. A comparison of the prevalence rates for early and late syphilis indicates that the present venereal disease program in Richmond is ineffective in bringing individuals to treatment while they are in an infectious stage.

5. The findings indicate that the treatment of gonorrhea is even more neglected than that of syphilis, not only by the patient himself but by those who are expected to provide treatment.

6. Annually there are 1,020 individuals in Richmond who acquire syphilis and an additional 1,272 who seek treatment for the first time after the disease has reached the late stages. There are 2,724 new patients with gonorrhea who seek treatment each year.

7. One-third of the individuals under treatment by the private physician are unable to pay fees and much of the financial burden of treatment is shifted to the private practitioner.

8. The principal justification for the provision of adequate facilities is the early age at which the infection is acquired. More than half of the individuals with syphilis are infected before they are 25 years of age. Individuals at this age have only very limited earning power which at best is insufficient to pay for treatment of syphilis.

9. Very inadequate medical social service work is provided. Less than one out of every five syphilitic patients receive 20 or more doses of arsphenamine with appropriate heavy metal or a sufficient amount to render him noninfectious.

10. Little or no provision is made for the diagnosis and clinical management of syphilis in industry in the city.

RECOMMENDATIONS

A Committee to Review the Question of Syphilis Control has recently submitted its report to the President of the Medical Society of Virginia. This Committee, representing your State society in an official capacity, has described a practical and comprehensive program for the control of syphilis. It is, therefore, recommended that the members of the Richmond Academy of Medicine sponsor this program and actively support the State Health Officer and the Director of Public Welfare of the City of Richmond in developing it to the fullest extent.

The control of gonorrhea was not considered by this Committee. This subject should be thoroughly studied by both physicians and health officers in order that practical and effective control measures may be applied in the near future.

Have you made your hotel reservations for the Roanoke meeting? If not, don't delay—make them today—as we are expecting to see you at that time!

THE VENEREAL DISEASE PROGRAM IN RICHMOND WITH RECOMMENDATIONS FOR SUGGESTED CHANGES.

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and
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The Public Health Service was requested by certain interested groups* to make a survey of the venereal disease control program in Richmond, to study present treatment facilities and make recommendations for such changes as would make the program more efficient. The results of this study and observation, together with suggested changes to promote greater efficiency in the control of venereal diseases, are presented in the following paragraphs.

BUREAU OF HEALTH

The total annual appropriation of the Bureau of Health of Richmond for the past five years has been as follows:

1931—$115,973.31. 1933—$100,566.58.
1932— 118,473.83. 1934— 99,180.34.
1935—$104,828.20.

The distribution of this amount to the most important activities in 1935 is as follows:

Communicable disease control	$14,300.02
Venereal disease control	4,750.20
Infant welfare	19,472.30
Tuberculosis control (does not include Pine Camp)	6,198.02

A further analysis of those funds expended for control of venereal disease shows:

Payroll—$2,580.27. Includes part salary to chief nurse, one full-time nurse and two contract physicians. The physician at the Venable Street Clinic is paid $3.00 per clinic session; the physician at the Jail Clinic approximately $12.00 per clinic session.

Expenses—$2,169.93. $1,957.14 for drugs alone, $1,800.00 of which was paid to the Out-Patient Department of the Medical College of Virginia for arsphenamine.

*This survey was sponsored by the Richmond Academy of medicine; Basil B. Jones, M. D., Chairman of Committee on Relations with Preventive Medicine, Richmond Academy of Medicine; I. C. Riggin, M. D., Commissioner, State Department of Health; W. Brownley Foster, M. D., Director of Public Welfare, City of Richmond; Arthur A. Guild, Richmond Council of Social Agencies; Miss Miriam H. Dettelbach, Secretary, Richmond Council of Social Agencies, and F. J. Wampler, M. D., Out-Patient Department, Medical College of Virginia.

There is no department of venereal disease control. One nurse constitutes the only full-time employee doing only venereal disease work. One sanitary officer gives part of his time to court cases with venereal diseases. The city and State have a joint laboratory. The State furnishes no financial aid, drugs or personnel to the Bureau of Health.

REPORTING

The only reporting of venereal diseases in the city of Richmond is limited to the Medical College Clinic and court cases. No attempt is made by the city either to supply physicians with report forms or to encourage their use.

NUMBER OF CASES OF VENEREAL DISEASES REPORTED DURING 1935

	Physicians	Clinics	Hospitals
Syphilis	0	1,206	0
Gonorrhea	0	644	0

No arsenicals or heavy metals are furnished free to the physicians.

LABORATORY OF CITY OF RICHMOND

The city and State laboratory are combined, the city contributing one-third of the support. The director of this laboratory is not a physician but has had excellent training. She has two full-time and one part-time assistants doing work pertaining to venereal diseases.

The serologic tests used for the diagnosis of syphilis are the Craig and the Kahn, the latter not being used routinely, but only on doubtful cases. There is no periodic clinical control of these tests.

TESTS PERFORMED

Type of test	Number of tests performed		Number of positives	
	City	State	City	State
Craig	14,070	63,679	1,962	9,659
Kahn	572	2,328	213	818
Gonococcal smears	2,503	6,967	620	1,608

The Gram stain is used exclusively for the gonococcal smears.

Darkfield examinations are not performed.

OUT-PATIENT DEPARTMENT, MEDICAL COLLEGE OF VIRGINIA

The Out-Patient Department of the Medical College of Virginia plays the major role in the treatment of indigent cases of syphilis and gonorrhea. During the fiscal year, July, 1935 to June, 1936, there was a total of 26,218 patient treatment visits to the various sections treating venereal diseases, namely, dermatology and syphilis, child syphilis, genito-urinary and gynecology. Approximately 90 per cent of the patients are from the city of Richmond, the remaining 10 per cent coming from adjacent counties.

Patients in all the clinics are requested to pay a nominal registration fee, and small fees for individual treatments in syphilis but this is not an absolute requirement. Last year it was found that 54 per cent of those attending the syphilis clinic were treated entirely free, the other 46 per cent paying nominal fees of from 25c. to $1.00. The city of Richmond, through its Department of Public Welfare, contributed $1,800.00 for arsphenamine and $2,649.00 for prescriptions which were filled for patients from all clinics. Receipts from polyclinic patients who were able to pay something, totalled $12,996.47—one-half of which came from registration fees.

Each section treating a venereal disease was studied and an individual report of these follows.

ADULT SYPHILIS SECTION

The adult syphilis section was so named to differentiate it from the child section where the age limit is twelve. Last year there were 1,200 new cases of syphilis with a total of 14,454 treatment visits. There are six sessions a week, five in the afternoon and one in the evening, each lasting approximately two hours. Both sexes and colors are treated and also pregnant women with syphilis. Assisting the part-time clinician in charge are a resident and an interne. During the evening session, he has the added assistance of another part-time physician.

The rest of the staff consists of two Works Progress Administration nurses and a clerk, and one nurse from the Department of Public Welfare who spends half her time on follow-up work. The two nurses who are well trained and efficient prepare the reagents and supervise the treatment of the patients by medical students. The clerk must spend part of her time in the general office work of the Out-Patient Department, so that she has insufficient time to keep the records of the syphilis section properly. This affects particularly lapsed cases, pregnant women, sources and contacts. The nurse from the Bureau of Health is able to spend but half her time to follow up such cases as the physician deems necessary. This means that lapsed infectious cases, sources and contacts remain practically untouched.

Accepted standards of treatment procedure are carried out. Arsphenamine, neoarsphenamine and bismuth are the antisyphilitic drugs used. There are no facilities for doing darkfield examinations in the section. Lumbar punctures are done on a very small percentage of the cases. Roentgenologic examinations of the chest in suspected cases of cardiovascular syphilis are made occasionally with a cost of $6.00 to the patient.

It was found that only 17 per cent of early syphilitic cases in this clinic received twenty or more injections of an arsenical and appropriate heavy metal which means, literally, that only 17 per cent were rendered noninfectious. The other 83 per cent were permitted to lapse from treatment and become public health problems.

In an analysis of 111 pregnant women registered at the clinic and found to have syphilis, fifty cases or 45 per cent received no antisyphilitic therapy during this pregnancy. Sixty-one women received an arsenical, an average of 3.3 injections per patient with but eight patients receiving ten or more injections. Sixteen of the 111 patients received a

MEDICAL COLLEGE OF VIRGINIA OUT-PATIENT DEPARTMENT PATIENT TREATMENT VISITS FOR VENEREAL DISEASES

	NEW				OLD						
	White		Colored		White		Colored		Total		Grand
Section	M	F	M	F	M	F	M	F	M	F	Total
Derm. & Syph. (Adult)	78	62	163	143	2,024	1,907	4,380	5,697	6,645	7,809	14,454
Syph. (Child)	7	3	14	10	315	322	777	1,139	1,113	1,474	2,587
G. U.	166	7	399	1	1,309	174	3,717	142	5,591	324	5,915
Gyn. (Child)	--	3	---	12	----	162	----	231	----	410	----
Gyn. (Adult)	--	69	---	298	----	399	----	2,086	----	2,852	----

heavy metal, an average of 5.6 injections per patient and none received adequate therapy. Further, of the 111 pregnant women with syphilis, only thirty-five registered before the fifth month of pregnancy.

In this condition, where syphilis takes such a heavy toll, it is particularly essential that treatment of the infected mother begin before the fifth month of pregnancy and that it include at least ten injections of an arsenical compound and ten of a heavy metal. An untreated pregnant woman has only a 17 per cent chance to deliver a living nonsyphilitic baby, whereas, if adequate treatment is given, starting before the fifth month of pregnancy, she has a 91 per cent chance to deliver a living, nonsyphilitic child.

The records of cases in this section are kept on a unit card along with notations from other sections, with the result that confusion is inevitable. One may have to hunt through several pages to find the last progress note from the syphilis section, causing the clinician extra work and the loss of valuable time.

CHILD SYPHILIS CLINIC

The child syphilis clinic meets two mornings a week, one for white patients and one for colored. The personnel includes the same two Works Progress Administration nurses who work in the Adult Section and one untrained social worker and clerk combined, who divides her time with the Vulvovaginitis and the Pediatric Sections. She has no automobile for follow-up work and therefore must travel by bus or street car on a pass which circulates for the use of others and is not always available. Cases visited are those designated by the physician in charge of this section, usually lapsed infectious cases. A maximum of two visits may be made to any one case requiring follow-up attention; usually only one visit is made. The results of this follow-up work are very unsatisfactory; no records are available. All things considered, with an untrained worker, no regular means of transportation and dividing her time between three clinics as well as acting as clerk, the results could be nothing but unsatisfactory.

There were thirty-four new patients registered in this section last year and a total of 2,587 treatment visits. The mother and child may both be treated here and this is a tremendous advantage. Standard treatment procedures are carried out. Lumbar punctures are performed rarely. Roentgenologic examinations in suspected bone syphilis are done occasionally with a cost of $6.00 or more to the patient but this charge is prohibitive for most patients. The greatest omission in this clinic is the lack of trained follow-up personnel.

VULVOVAGINITIS SECTION

This section is held one morning a week. The personnel consists of one student nurse, one Works Progress Administration nurse and the Works Progress Administration social worker described previously.

The majority of the cases receive local treatment of either 10 per cent argyrol or 2 per cent aqueous mercurochrome. A few cases are given intradermal Corbus-Ferry Gonococcus Filtrate, once a week. Theelin and similar endocrine products are not used because of their cost. Mothers are advised to administer at home sitz baths twice a day as well as injections of 10 per cent mercurochrome twice a day. Smears are taken at each visit.

The Gram stain is used for diagnosis and for evidence of cure. Negative clinical findings and three negative vaginal smears at weekly intervals are the criteria for cure.

ADULT GYNECOLOGY SECTION

The Adult Gynecology Section, where a large proportion of the cases have gonorrhea, has three morning and five afternoon sessions a week. Six physicians alternate in the direction of the activities. There is one graduate and one student nurse. Treatment consists of topical applications of 10 per cent silver nitrate and glycerol and ichthyol tampons. Patients are advised to use hot douches at home three times a day. Last year there was 2,852 treatment visits. There is no attempt at follow-up because of lack of personnel.

GENITO-URINARY SECTION

The Genito-urinary Section treats mainly gonorrheal infections. During the fiscal year 1935-1936, there were 5,915 treatment visits to this section. Seven physicians alternate in the direction of activities of the five afternoon sessions. There are neither nurses nor social workers and no attempt is made at follow-up work. The usual accepted treatment program is performed, anterior and posterior irrigations with potassium permanganate and sounds and massage before discharge. The patient reports to the section twice a week. Darkfield ex-

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aminations are made in this section only, either by students or an attendant. The patient with a penile lesion is sent to this section on admission and a darkfield examination is made. If this is found to be positive, the patient is transferred to the syphilis section, but there is no check to determine that he reports to that section. Gram stains are used for gonococcus smears.

LABORATORY OF THE MEDICAL COLLEGE OF VIRGINIA

The laboratory is under the direction of the Professor of Bacteriology. Another person is in immediate supervision, however, with one trained assistant.

The Kline diagnostic is used as a routine serologic test. On all doubtful or positive results from the above test, a modified Kahn is used for confirmation. A total of 15,684 serologic tests was performed during ten months of 1935. There is no periodic clinical control of these tests nor are there any cross checks with other laboratories.

The Gram stain is used exclusively on all smears for gonococci. There were 409 of such slides examined during nine months of 1935.

The performance of darkfield examinations is not a routine service of the laboratory. Approximately five were done during the year 1935.

THE MOTHERS' AND CHILDREN'S CLINIC

The Mothers' and Children's Clinic, commonly known as the Venable Street Clinic, is conducted by the Bureau of Health. It is associated with two other clinics, Child Welfare and Prenatal, making it a true polyclinic. Patients with syphilis are referred from the Prenatal Clinic at the same address and also from the South Side Prenatal Clinic. One clinic session a week is held.

Personnel includes a contract physician and two nurses. One of these spends the remainder of her time outside the clinic in the tuberculosis work while the other does nothing but venereal disease control, being the same one who conducts the Jail Clinic and does follow-up work at the Medical College Clinic.

There were 291 new patients in the two prenatal clinics, seventy-three, or 25 per cent, of whom had a positive serology. Last year, besides these seventy-three prenatal cases with syphilis there were fifty-six post-natal cases, the latter returning for antisyphilitic therapy after delivery. In many cases, both mother and child are treated. There was a total of 386 treatment visits. In the group of seventy-three pregnant women treated and delivered, fourteen registered before the fifth month of pregnancy and received an average of fifteen injections of neoarsphenamine per patient. The remaining fifty-nine patients, registering during or after the fifth month, received an average of ten injections of neoarsphenamine. Bismuth was given to certain cases but not as a routine procedure. All cases of gonorrhea are referred to the Medical College Clinic.

RESULT OF PREGNANCIES OF SYPHILITIC MOTHERS

Number of syphilitic mothers			Number delivered			Live births			Still-births			Miscarriages			Not delivered		
W	C	T	W	C	T	W	C	T	W	C	T	W	C	T	W	C	T
7	66	73	5	52	57	5	48	53	0	2	2	0	2	2	2	14	16

Forty-three mothers returned for a postnatal Wassermann, of whom seventeen were positive. Thirty-nine babies were tested and only four were found to have a positive serology.

The public health nurse visits every case each week following treatment. All lapsed cases are visited and an attempt to secure sources and contacts is made but has not been very successful.

CITY HOME

During the fiscal year, 1935-1936, there were at the City Home 144 cases of syphilis and 114 cases of gonorrhea. Treatment is under the direction of four medical students, each treating a different group, that is, male white, male colored, female white, female colored. There was no definite time set for clinic periods, dependence being placed upon the available time of the students. The most important group at this institution, as far as venereal diseases are concerned, are the pregnant women. Last year, there were 123 of these registered, seventeen of whom had a positive Wassermann before delivery, or approximately 14 per cent. Practically all of these seventeen came in on the day of delivery or but a short time before, making treatment impossible. However, each of the five cases who did register several months early, received over ten injections of an arsenical and the cord Wassermann was negative in all of these cases. One mother received three injections of neoarsphenamine and the cord Wassermann was negative. Among the remaining eleven mothers with positive serology who did not receive antisyphilitic therapy, there were six who had a strongly positive cord Wassermann, or over 50 per cent.

Following delivery, only one case received adequate therapy. When the child is syphilitic, attempts are made to have both mother and child return to the City Home or go to the Medical College Clinic for treatment. However, since there is no personnel for follow-up, the efficiency of these efforts is not known and is extremely doubtful.

Gonorrhea is treated by these same medical students, dividing the groups as for syphilis. Usual treatment methods are in force.

	Number of patients	Number of treatments	
		Neo	Bismuth
Syphilis	144	602	596
Gonorrhea	114	403	

City Jail

A venereal disease clinic is maintained by the Department of Public Welfare at the City Jail for the treatment of persons sentenced because they have syphilis or gonorrhea and for those persons serving a sentence for some other reason and found to be infected. During the year 1935, there were 115 inmates treated for syphilis and twenty for gonorrhea. The syphilis clinic is held once a week under the direction of a contract physician, lasting from thirty to sixty minutes. The patients are given six injections of neoarsphenamine but rarely is a heavy metal used. There is no provision for darkfield examination, lumbar puncture or roentgenologic work. Gonorrhea is treated by a senior medical student but no record is kept of this work.

Attempts to follow-up these cases after release to provide further treatment and render them permanently noninfectious are ineffectual because of lack of personnel. It has been hampered, too, by the incorrect addresses given by the prisoners. The nurse attending this clinic is the same one who works at the Medical College and the Venable Street Clinics.

Industry Groups

There has been no effort by the Bureau of Health to enlist the aid of industries in the diagnosis and treatment of syphilis and gonorrhea. Certain industries are doing some work in this field, quite independent of the Health Department.

duPont de Nemours takes an annual serologic test on all employees. Those found to be infected are required to take a standard form of treatment from their private physician and must bring a slip to the company physician each week, signed by their physician, noting the treatment they received. Failure to take treatment results in dismissal. A serologic test is performed on all applicants for employment and those with a positive result are rejected.

The American Tobacco Company, through their physicians, have taken serologic tests on all their employees. This is done annually on newer employees. Those found to be infected are treated if they have been employed five years or longer; otherwise, they are discharged. Workers in the cafeteria are required to have a serologic test every six months. Positive cases are not reported to the Bureau of Health.

The Nolde Bakery discharges any employee with a positive serologic test. There may be other industries in Richmond with some sort of a venereal disease program, but it was impossible to obtain a record of them.

Among certain accident insurance groups, such as policemen, firemen and taxi-drivers, only on the latter are Wassermann tests mandatory.

A Suggested Program

The ineffectiveness of the present program has been shown by the recent survey of Usilton. She found that there are 1,020 cases of early acquired syphilis annually who come under observation or treatment and an additional 1,272 who seek treatment in the late stage of the infection. There are 2,724 patients with gonorrhea who seek treatment each year in Richmond. It was further ascertained that there are 1,222 patients constantly under observation or treatment, 922 with syphilis and 300 with gonorrhea. Forty per cent of all venereal disease patients were in the hands of private physicians and, of these, one-third were classified as of poor economic status which means they paid little or nothing for their treatment. As a final point, it is desired to emphasize the fact that less than one out of every five syphilitic patients, seeking treatment either from the private physician or public clinic, remained under this therapy long enough to be rendered permanently noninfectious.

With the present problem clearly defined and the inadequacies of the present program known, it is desired to present a more effective program for the city of Richmond which can deal effectively with this enormous plague.

Parran[1] has outlined the four objectives in a control program for syphilis, and these are applicable

[1]Parran, Thomas, Jr., *Ven. Dis. Inform.*, 1935, 16: 1, Washington, D. C.

to the whole problem of venereal diseases. Briefly stated, these objectives are:

1. Provision of adequate diagnostic and treatment facilities.

2. Improvement in case reporting and the supervision of cases.

3. Intensive and complete investigation of cases and contacts.

4. Professional and public education in matters pertaining to social hygiene.

I. ADMINISTRATION OF THE PROGRAM

In a health department as large as that in the city of Richmond it is absolutely essential that the venereal disease work should be integrated in close liaison with the communicable disease division, but it should be directed under a separate division or subdivision with a high degree of autonomy. The program should be directed by a full-time venereal disease control officer. The venereal disease director must be a specialist in his field, capable of giving expert consultation advice on diagnosis or treatment as well as having a knowledge of the most effective control measures. Extreme care should be taken in the selection of this person, for upon him will depend the effectiveness and the end-results of the program. He should be aggressive, have a pleasant personality, be endowed with considerable tact and be an interested and determined fighter.

Personnel in his division should include one stenographer and at least one nurse and two medical follow-up workers, specially trained for this type of work. The nurse should perform her special duties in the Mothers' and Children's and the Jail Clinics and in addition assist in follow-up investigations. The two medical follow-up workers should perform follow-up activities chiefly for the Medical College Clinics but be under the supervision of the venereal disease control officer.

II. EPIDEMIOLOGIC PROGRAM

In a large city like Richmond, the health officer should assume responsibility for all venereal disease follow-up work for clinics and private physicians. Clinics should limit their activities to diagnosis and treatment. The program includes two important factors, namely: 1. Investigation of the early infectious case from the standpoint of source of infection and contacts, extramarital, marital and children. The results obtained will be in direct proportion to the ability of the medical follow-up worker, her tact and power of persuasion constituting the chief means she has for obtaining much valuable information. 2. Follow-up of lapsed infectious cases. This service, when provided to physicians, must insure the necessary privacy and professional secrecy. It is in this phase of the program that cooperation between law enforcement agencies and courts can be of invaluable assistance. There must be some means for the compulsory treatment and quarantine of recalcitrant infectious cases—those persons with contagious lesions who refuse treatment and refuse to observe the ordinary precautions in their relationship with uninfected sex partners, children and others. When such patients fail to respond to persuasion, it is necessary to have the full cooperation of the police and the courts in order that such cases can be made to take treatment until they are rendered permanently noninfectious.

The local health officer in Richmond has all the authority for the control of venereal disease that he has in the control of smallpox or meningitis. "In his discretion, he can placard the house in which a case of syphilis, gonorrhea or chancroid is found, he can quarantine a patient in the home or jail." If a policeman is sent out for a few of these irresponsible, recalcitrant individuals, the word will soon be passed around and lapsed infectious cases will not be so great a problem.

III. LABORATORY SERVICE

Free laboratory service for all physicians is a most essential factor, including darkfield examination, serologic tests for syphilis (blood and spinal fluid) and examination of gonococcal smears. The latter two are being done by the Bureau of Health Laboratory but there is no provision for darkfield examination. This is necessary if one is to diagnose syphilis early and begin treatment immediately in order that patients will not only be rendered noninfectious but have a greater chance for cure. This procedure should be set up, preferably in the present laboratory, where any patient, from private physician or public clinic could be sent for immediate examination. Since this is a highly technical procedure it should be in the hands of a skilled technician. Results should be reported by telephone as well as by mail.

Because of many instances where it will be impossible for the patient to be sent to the laboratory for a darkfield examination, it is considered ad-

visable to initiate the indirect darkfield technic. The capillary tubes in which the physician obtains secretion from the lesion may be sent to the laboratory in convenient mailing tubes or left at one of the collecting biological stations. Since many physicians have had no experience with this method, and its value depends to a large degree on the care and skill with which the secretion is obtained, an informative campaign would be advisable.

Serologic examinations should be reported as positive, doubtful or negative. Standardization of serologic test performances and interlaboratory cross checks on comparable specimens are necessary to insure efficient service.

IV. Furnishing of Free Antisyphilitic Drugs to Physicians for All Cases

This procedure is considered necessary for several reasons but primarily to help lighten the financial load now assumed by the private physician. As was stated previously, Usilton found that one-third of the patients treated by private physicians in Richmond were of a poor economic group which means they were able to pay little or nothing for their antisyphilitic therapy. The physician furnishes his time, office and experience and in the past has also supplied expensive antisyphilitic drugs. The furnishing of these drugs free, for all patients, will decrease his personal expense considerably. Neoarsphenamine and bismuth should be the drugs supplied. These could be made available to the physicians at the various biological stations throughout the city or sent by mail from the Health Department in response to individual requests.

V. Public Clinic Facilities

The Medical College Out-Patient Clinic for syphilis and dermatology treats 80 per cent of the clinic cases and yet they received but $1,800 from the city during 1935. It is recommended that greater financial support be given by the city of Richmond since the largest part of their problem is cared for in this clinic. The clinic itself has several faults but these are due mainly to lack of funds and not to lack of initiative or interest on the part of the Director of the Out-Patient Department or the clinicians in the several sections.

The clinic is centrally located, easily accessible and is a polyclinic, all most essential features. When the new building is completed, adequate clinic space should be available, something sadly lacking at present. A general criticism, applicable to all the sections at the Medical College Out-Patient Department, treating venereal diseases, is lack of personnel. If the Works Progress Administration nurses alone were removed, it is doubtful if some of the sections could continue. Clerical force is very inadequate and this is most unfortunate in these particular clinics where it is essential that accurate records be kept on all patients with regard to the treatment received, lapse from therapy, information pertaining to sources and contacts, and many other details very inadequately handled at the present time.

The records kept of patients are most confusing. One may have to look through several pages to learn what and when was the last treatment. A separate record for syphilis and gonorrhea is very necessary for the efficient and intelligent conduction of the clinic. No specific recommendations are made to remedy this, but it is suggested that a representative visit one of several well-organized clinics and from these devise a form suitable to local needs. Every patient, whether transferred or transient, should be given a record of his antisyphilitic treatment and serologic reports.

Follow-up of lapsed infectious cases and investigation of sources and contacts are not performed with any degree of satisfaction because of lack of trained personnel but it is thought that the cooperation of a larger venereal disease follow-up personnel of the Bureau of Health will aid materially in this problem.

This is important not only for syphilis but for gonorrhea, particularly vulvovaginitis cases. It has been estimated that 10 per cent of all gonorrhea in the female occurs in girls under fourteen years of age as a result of gonorrheal vulvovaginitis, and most of these cases are contracted in the home from some member of the family. Therefore, source and contact examinations are very essential.

Special suggestions are made for individual clinics with the knowledge that a change in quarters and a larger budget will automatically remedy many of these.

It is recommended that a separate clinic session be held for pregnant syphilitic women. This is advisable not only because of possible embarrassment to the expectant mothers of being in a large public waiting room containing both colors and sexes but

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also because more time and care must be given in the diagnosis and treatment of such cases.

It is strongly advised that the present practice of permitting medical students and attendants to perform darkfield examinations without the confirmation of a skilled technician be abolished. All darkfield examinations should be done by a skilled technician in the regular laboratory. It is more valuable for medical students to learn the correct procedure to secure secretion from suspicious lesions than actually to carry out the examination.

The only suggestion to be made with reference to the laboratory of the Medical College is that their serologic tests be periodically controlled by cross checks with one or more laboratories, preferably one performing the same test. The reporting of the results of serologic tests for syphilis by the terms positive, doubtful or negative is considered better than the old nomenclature, one, two, three and four plus.

The Mothers' and Children's Clinic should be under the direct supervision of the venereal disease control officer. Good work has been done considering the present facilities but the clinic has scarcely touched the surface. Expectant mothers do not register early enough and there is insufficient follow-up after delivery. It is to be expected that the general prenatal care and epidemiologic programs will remedy these conditions. In order that treatment be effective in pregnancy, the syphilitic mother must be examined before the fifth month of pregnancy and continuous treatment instituted at once. She and the baby must be followed afterwards, even though both are negative serologically. The present practice of the nurse seeing each patient the day following treatment is considered unnecessary.

The City Home, where practically all of the active syphilitic cases are pregnant women, has the same difficulty. The mothers usually register only a day or two before delivery and there is no way to follow them after delivery. All these activities should be coordinated by the venereal disease control officer. The practice of having four different syphilis clinics under four medical students is poor medical and public health practice. This, again, should be corrected by the venereal disease control officer.

The Jail Clinic should be directed by the venereal disease control officer, thereby eliminating the expense of a contract physician. At present the prisoners are obtaining inadequate treatment even though they may be sentenced for six months. They are released from jail but no effort is made to see that they continue treatment, even though infectious. It would appear more beneficial and certainly more economical to place these "persons of ill repute," found to have a venereal disease, on probation, with the understanding that they will take treatment at the Medical College Clinic. Then, if they refused to report for such therapy, send a policeman after them and place them in jail.

VI. REPORTING

The Virginia law for the control of venereal disease, enacted and approved in 1920, designates syphilis, gonorrhea and chancroid as the venereal diseases. It states further that any physician diagnosing or treating any of these diseases shall report such case immediately in writing to the State Board of Health, giving the age, sex, race, date of onset and probable source of infection.

Source	Number of cases reported to Health Dept.		Number of cases obtained by survey	
	Syphilis	Gonorrhea	Syphilis	Gonorrhea
Private physicians	----	---	747	1,814
Public clinics	1,206	644	1,355	700
Hospitals and Institutions	----	---	190	210
Total	1,206	644	2,292	2,724

Compare the above figures and one can see plainly the inadequate reporting being done. No one can be held directly responsible for this. The physicians will not report because nothing is done about it and the Bureau of Health has been unable to do anything because of lack of funds. This procedure calls for the closest cooperation between physician and health department. Reporting must be made convenient, free of any expense to the physician by the provision of penalty mailing envelopes, distributed free, and there must be assurance that these reports will be kept from the public, preferably under lock.

VII. EDUCATIONAL AND INFORMATIVE MEASURES FOR THE PUBLIC

These measures are most important if it is expected to obtain the cooperation of the public in the control program. They should be planned and conducted by the venereal disease control officer by and with the advice of the Academy of Medicine and the Director of the Bureau of Health. Such a program should consist of distribution of literature, articles in local newspapers and periodicals, moving

pictures, lectures and radio talks. Venereal diseases must be considered and taught as communicable diseases. Sex education and moral issues are the primary responsibility of the educators and the ministers; our immediate problem as physicians is to treat venereal diseases with the scientific methods available.

VIII. Cooperation with Industries

As shown earlier in the report, several of the larger industries are carrying on a venereal disease program of their own but there has been no cooperation with the Bureau of Health. Under the direction of a full-time venereal disease control officer, such a program could be increased and integrated with the general control measures. Serologic reports from these industries should be sent to the Bureau of Health, and epidemiologic service could be applied in suitable cases. It is vitally important that a routine serologic test be done on all employees to prevent the late crippling manifestations of syphilis.

IX. Cost of Venereal Disease Program

What will be the cost of the above program? Any such statement must necessarily be a relative one.

The following items should provide for the organization of reasonably effective measures:

$4,000	Venereal disease control officer.
3,000	Two medical follow-up workers.
1,500	One nurse.
1,000	Stenographer.
2,100	Free drugs to private physicians.
7,350	Medical College of Virginia Out-Patient Department.
2,000	Travel expenses.
1,000	Educational program.
$21,950	Total budget.

The cost of supplying free drugs to private physicians is based on the finding by Usilton that there are approximately 900 cases of syphilis under observation or treatment at all times, 40 per cent or 360 of whom are cared for by private physicians and one-third or 120 of these are of poor economic status. It is estimated that $17.50 will furnish free drugs necessary to provide adequate treatment, a total of thirty injections of an arsenical compound and interim heavy metal. This would mean a total cost of $2,100.00 for approximately 120 cases.

With reference to the subsidy to the Medical College of Virginia Out-Patient Department, the estimate of Baltimore City Clinics is used, that $0.35 is required per syphilitic patient per treatment. Using this estimate for adequate treatment as recommended by the Cooperative Clinical Group, there would be a cost of $14,700.00 for the 600 patients. However, since this is a State institution and many of the patients come from the surrounding counties, it is believed that the city of Richmond should be responsible for but half of this amount, or $7,350.00.

Summary

Very briefly, the following specific recommendations are made to provide an adequate Venereal Disease Control Program for Richmond:

1. Venereal disease control officer, full time.
2. One nurse and two medical follow-up workers full time to venereal diseases.
3. Increase appropriation to a minimum of $26,600.00.
4. Greater financial support to the Out-Patient Department of the Medical College of Virginia.
5. Reorganization of Jail Clinic, Mothers' and Children's Clinic, and City Home, under the direction of the venereal disease control officer with the necessary financing and subsidies.
6. Provision of free laboratory service to physicians, including darkfield examination, direct and indirect, serologic tests for syphilis and examination of gonococcal smears.
7. Provide free antisyphilitic drugs to physicians for all patients.
8. Formation of an epidemiologic service for the purpose of returning lapsed infectious cases to treatment and to search for sources and contacts.
9. Stimulation of reporting by private physicians, hospitals and clinics with the result that good morbidity and mortality statistics shall be available.
10. Development of an informative and educational program.
11. Cooperation with industries.

Recommendation

The Medical Society of Virginia recently adopted a comprehensive and practical program for the control of syphilis throughout the State. Many of the features contained in this program apply to the entire subject of venereal disease control. It is recommended, therefore, that the Richmond Academy of Medicine and the Director of Public Welfare accept

the recommended program of the Medical Society of Virginia for immediate application in the city of Richmond.

ADDENDA

There have been certain improvements in the Medical College of Virginia Out-Patient Department since this study was made. It is desired to note these changes.

1. In regard to the child-syphilis clinic, there is now a fully-trained medical social worker attached to this clinic. She gives all of her time to the child-syphilis clinic, the vulvovaginitis clinic, and general medicine clinic. The WPA worker who had done some follow-up visitations and clerical work for these clinics is now limiting her work to the clerical side entirely.

2. The second point is two medical social workers in the adult syphilis clinic and the prenatal clinic. There is now an experienced medical social worker on a WPA Project to work in the adult syphilis clinic, and a second qualified and trained social worker on a WPA Project who is assigned to the prenatal clinic and to the nervous and mental clinic.

MODERN ASPECTS OF HEMATOLOGY.*

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Practically neglected for more than two hundred years, hematology has come into its own during these slow development of technical procedures the study of the blood and blood forming organs, inspired by the epochal discoveries of Minot and Whipple, has proceeded so rapidly during the past decade that last ten years. From an obscurity that saw only the hematology, sponsored by internal medicine, has progressed to take its place alongside of the other advanced branches of medicine. If this be doubted one need only glance through the current literature, or, more convincing, trace the progress of our knowledge of this largest organ of the body from the several chapters devoted to hematology in textbooks ten years ago on through, first the small book of Janet Vaughan, Whitby and Britton's larger volume, and finally the Handbook of Hematology, four complete volumes, edited by Dr. Hal Downey, of the University of Minnesota, which shortly are to come from the press.

Nor is this astonishing if one looks back upon the development of our knowledge of the widely scattered erythron, as Boycott aptly designated the blood, bone marrow, and reticulo-endothelial system, together an organ considerably larger than the liver. Progress has been slow since 1673 when Leeuwenhock described "globules" in a drop of his own blood examined with his simple microscope. It was 1851 before the technical difficulty of enumerating these red blood cells was overcome. Hemoglobin was discovered by Funke this same year, and two years later the first white count was performed. The next twenty-five years saw the development of more accurate means of determining these quantitative changes. Erhlich's application of the analine dyes to blood smears in 1879 marked the beginning of qualitative studies. He showed that the lymphocytosis of infection, described by Virchow, was actually a leukocytosis. Here qualitative studies bogged, as if it were enough to be able to distinguish a leukocyte from a lymphocyte or a monocyte. That this is essentially true is evidenced today, just fifty-seven years later, in the all too frequent query of the laboratory: "What's his count, how many polys?". The average physician who would be insulted at any insinuation that he could not distinguish one cardiac murmur from another gladly, even proudly at times, will admit that he "knows nothing about the blood". As a consequence the task of carrying on in hematology has been left to the inadequately trained technician. The result has been the repetition of the same things we have known for years: the white count and the differential.

Discovery of the role of liver in pernicious anemia served as a stimulus to investigative work by more trained workers. From these more able investigations have come the rapid advances of the last few years.

*Read before the Richmond Academy of Medicine at its meeting on January 12, 1937.

Quantitative studies have given way to qualitative approaches.

Although Hedin attempted volumetric determinations in 1890 it remained for Haden, Osgood, and Wintrobe to develop the modern hematocrit. Capps, in 1905, made reasonably accurate cell volume determinations. Had this study of cell size been followed I feel sure that the somewhat constant macrocytosis of liver disease would have hinted at the cause of pernicious anemia years before the studies of Minot and Whipple worked out this relationship. The hematocrit has become established as an integral part of every complete blood study, affording as it does, an accurate method of grouping anemias into classes based on cell size and hemoglobin content.

The old, vague classification of "primary" and "secondary" anemias has been discarded, for now we know that most anemias fall into groups which are characterized by increase or decrease in cell size and normal or lowered hemoglobin content. Having determined that an anemia is macrocytic or microcytic, hyperchromic or hypochromic, it remains only to find the involved deficiency or deficiencies, for more and more we are finding that there are mixed types. Or again, the recognition of an underlying toxic, metabolic, hemolytic, congenital, or other pathological state is made the more readily possible. I do not mean that the hematocrit is a substitute for the study of the patient; rather is such a determination, as is the case with all laboratory procedures, merely a part of the approach to the diagnosis of a disease.

Further research has shown that the macrocytic hyperchromic anemias are associated with deficiency of an erythrogenic maturing factor contained especially in liver. Hypochromic anemias, on the other hand, are dependent most often on a deficiency of iron or some pathological state which leads to essentially the same result. Hematocrit determinations, quite easily performed in any laboratory, allow comparatively accurate differentiation, and treatment can then be instituted on a rational basis. I cannot stress this too strongly. All too frequently the internist is faced with the patient whose diagnostic problem has been made unnecessarily complex because of "shot-gun" therapy, as Dr. Minot has characterized the indiscriminate use of liver and iron. Nor is the useless expense to the patient inconsiderable in such cases. Liver, especially, is expensive.

I have mentioned the macrocytosis of liver disease. One cannot become interested in hematology without soon finding that there exists a very close relationship between the liver and the blood. Exemplified by the macrocytosis and leukopenia of cirrhosis and rapidly developing macrocytic anemia of the toxic hepatoses, this relationship has been attributed to a capacity on the part of the liver to store the pernicious anemia or erythrogenic maturing factor. Investigations now in progress at the Medical College of Virginia indicate that the liver plays an even more definite role in erythrogenesis. As a matter of fact, I am coming to believe that hematocrit determinations and study of the blood smear offer one of the most reliable of liver function tests. Unfortunately, as with other liver function tests, the macrocytosis does not appear until late, usually only after the blood count has fallen to about 3,500,000 cells. Nevertheless, studies of the blood appear to offer possibilities for differentiating the various diseases of the liver, one from another, as well as distinguishing parenchymal liver damage from other diseases. I say "parenchymal liver damage" because it appears that it is only the destruction of the liver cells themselves that is mirrored in the blood, obstructive lesions giving rise to little or no change.

The addition of the supra-vital technique to the study of blood is a comparatively recent contribution. Although most of us are insufficiently trained in this field to use this method of studying the living blood cell to any practical advantage, the work of students of Sabin, Doan, and Cunningham is adding considerably to our knowledge. This is especially true in the fields of tuberculosis, the lymphosarcoma and leukemia groups, and Hodgkin's Disease. The combining of the various schools of thought through the more universal application of all available methods of blood study remains for the future. Up to the present each school has confined itself, because of insufficient experience in other methods, to tissue preparations, supra-vital technique, or the stained film. This apparent failure to see some value in the other fellow's method has proved a drawback to hematology which will be overcome as men, schooled in all of the several methods, begin to enter the field as now they are. An enormous training is required to master all three techniques.

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Until recently our knowledge of the bone marrow had been gained entirely from post-mortem studies of this structure. Rarely biopsy of the tibia was resorted to. Now, there is ample opportunity for study of the blood forming marrow through the use of the comparatively simple sternal biopsy. A small button of marrow is removed from the sternum, fixed, and studied as in any biopsy. Even more simple is the sternal puncture, an office procedure enabling the physician to study cells aspirated from the bone marrow. Both of these methods are being used extensively in many medical centers, often contributing valuable information in puzzling cases. The greatest use of either procedure, however, will remain probably in the field of research, offering here an extremely effective means of studying the earlier blood cells. After a considerable experience with sternal punctures, I am of the opinion that their biggest practical value is in the diagnosis of the leukopenic leukemias and in substantiating the diagnosis of certain other blood dyscrasias.

More important than any of these procedures are the recent advances made in hematology through the study of the cells themselves. Arneth and Shilling stimulated some interest in qualitative changes through their contributions some twenty-five years ago. Several modifications of the Schilling count have simplified this, the filament-non-filament count now generally in use, offering a sharp line of demarcation on which all can agree.

Internists interested in hematology are placing greater dependence in a thorough study of the blood film, that is, in cell morphology. It is curious that, biopsy conscious as we have been in every other field, this most readily accessible biopsy of the largest organ of the body has been neglected all these years. Now appreciative of the value of these morphological studies as an aid both in diagnosis and prognosis, many of the larger institutions have established departments of hematology. These, acting as consultation services, study blood smears just as tissues are studied in pathological institutes.

The first prerequisite to such a study is a thorough appreciation of the appearance of the normal blood smear, its cells, and the staining of these cells. Above all the staining must be consistent. In the Memorial Laboratories we use the "Gruebler Wright's" stain, accurately time the staining, and stain for the red cells. If the red cells are stained properly, the white cells will take care of themselves. The film is studied as a picture, cell size, regenerative activity, immaturity, monocytic response, the shift, the appearance of the individual cells, approximate counts all being weighed. Such a study usually will enable one to conclude that the blood picture is consistent with this or that disease where a differential diagnosis is being considered, or, not infrequently, result in the suggestion of a new approach.

Cirrhosis of the liver, for instance, is often confused with peritoneal carcinomatosis, tuberculous peritonitis, or other causes of ascites. The macrocytic tendency with other features of the blood picture of cirrhosis generally will prove helpful in aiding diagnosis. Clasmatocytes with engulfed red cells may offer the first definite evidence of the existence of a bacterial endocarditis. This is especially true in cases of acute bacterial endocarditis. The finding of these phagocytic cells is not limited to this disease; they are seen occasionally in Malta fever, malaria, typhoid fever, peritonitis and septicemia. Such cells, even those without engulfed red cells, are of definite diagnostic value. Fulminating pulmonary tuberculosis frequently may be distinguished from pneumonia on morphological grounds. Many other leads may be gained from blood studies: the leuko-erythroblastic picture of metastatic bone tumors, the "greasy" red cells of multiple myeloma, and the "hair cells" found at times in some types of carcinoma.

I believe that surgery has much to expect from hematology. The work of Rosenthal, in particular, has served to re-create interest in toxic changes in blood cells. I have been particularly interested in these changes, and now the toxic manifestations of blood films have become a routine part of our reports. To place emphasis on quantitative changes alone is to be dependent upon a reserve force, the bone marrow. This is important, of course, but is it not more logical to expect more valuable information from a study of the condition of the cells that have been at the scene of battle?

With proper and consistent staining one soon finds that the polymorphonuclear cells undergo definite changes when subjected to inflammatory conditions; the more severe and widespread the condition, the greater the changes. The nucleus is first affected, the earliest change being a swelling with a loss of

the chromatin-para-chromatin relationship. Budding of the nucleus also is commonly seen. More impressive are the alterations in the cytoplasm. A basophilic degeneration takes place, the granules retracting to leave small buds of sky blue cytoplasm at the periphery of the cell. Ordinarily inconspicuous, the neutrophilic granulation becomes obvious, the granules prominent and darker, tending toward basophilia. As the degeneration progresses the granules become larger, variable in size, and irregularly distributed. The underlying cytoplasm, ordinarily neutrophilic, may become slate blue, a dirty gray, or disappear entirely. Vacuoles may develop. There are also definite changes in monocytes. Under certain toxic conditions these lose their fine azurophylic granulation, the cytoplasm becoming filled with large irregular basophilic granules. Then, too, one sees vacuolated monocytes with a sunset like coloring in the region of the indentation of the nucleus. These appear different from the monocyte ordinarily seen and probably represent the irritation forms described in supra-vital staining. This monocytic activity seems to represent response to inflammatory involvement of large areas of tissue, endothelial surfaces in particular, and is commonly a part of the picture of peritonitis, empyema, tuberculosis, and lung abscesses. Plasma cells in any great number suggest peritoneal or pleural inflammatory conditions. All of these toxic degenerative changes are present somewhat in proportion to the insult to which the cells are subjected.

It is in the evaluation of these changes that hematology offers a practical contribution to surgery. In the Memorial Laboratories we are studying the toxic changes in suspected appendices. While we have made mistakes, it appears likely that we shall be able to distinguish between a severe acute appendix and that removed and found to be chronic or normal.

Morphological studies offer an excellent possibility for differentiating abdominal hemorrhage from peritonitis. The quantitative changes in these cases are similar, the qualitative totally different. Generalized peritonitis with a low count is not infrequently confused with typhoid fever, or the pneumonia patient is considered to have a surgical disease. These, as well as other surgical diagnostic problems, are conditions in which study of the toxic manifestitations may prove helpful. In the field of gynecology, the differentiation of salpingitis from ectopic pregnancy appears to be aided by smear studies. The otolaryngologist has reason to expect help in following the course of mastoid infections. Rosenthal has shown that, while the total count and shift may not be appreciably different in mastoid infections and their more serious sequelae, the toxic changes reflect the spread of the infection quite accurately. The field is new but extremely interesting.

In closing, I might say that I do not wish to leave the impression that blood counts are to be discarded. As a part of the hemogram they are quite valuable at times, especially in determining absolute figures. Similarly the filament-non-filament count is helpful. Both are procedures easily done by any technician. But to stop here is to continue to be satisfied with methods which have become routine through years of usage. Nothing is more discouraging than the continued practice of looking upon the laboratory as a mere counting chamber. Routine requests deserve and get routine answers. Today the study of the blood offers valuable diagnostic and prognostic information to the physician who will equip himself and train his technical staff to be conscious of this advantage. Valuable deductions are within the grasp of the student of morphology, and it is my plea that physicians acquaint themselves with modern hematological advances just as they have followed progress in cardiology, roentgenology, and other branches of medicine.

THE TOBACCO HEART.*

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The question arises, should one class the tobacco heart a disease entity, or consider it a symptomatic and clinical condition because of the varied findings produced as a result of smoking.

The use of tobacco can affect individuals as follows:

*Read before the Roanoke Academy of Medicine, February 1, 1937.

1. Local irritating action with skin manifestations; this is noted by urticarial wheals or erythemas which are not persistent in character.

2. Pharmacological action (toxic)—due to the effect of nicotine on the sympathetic system with the subsequent vasoconstriction of peripheral vessels.

3. An allergic action—due to its protein manifestations and resultant sensitization as demonstrated with either the skin patch test or the intracutaneous use of the tobacco extract.

4. A psychic action—in which the individual shows an intolerance to the odors of tobacco or the sight of one smoking.

We will endeavor to give the opinions of men who have devoted great study to this physical menace which we, as a world, regard as a pleasurable habit, supposedly harmless, and later in this paper will cite two cases, one of a unifocal irritation, and the other multifocal in its action on the heart muscle.

According to Paul White[1], tobacco causes no actual heart disease, but if used in large amounts or in susceptible people may excite sino auricular tachycardia, premature contractions, paroxysmal tachycardia or in extreme cases auricular fibrillation. White feels that the tobacco heart is not one of heart disease but a temporary cardiac irritation.

The active constituent of tobacco is nicotine[2], an acrid, tarry, volatile, liquid oil which is exceedingly poisonous; it is an alkaloid $C_{10}H_{14}N_2$ and is considered a mild narcotic. The puffed smoke contains the alkaloid nicotine, pyridine and its derivatives carbon monoxide, several aldehydes, hydrocyanic acid, methyl alcohol, a volatile oil and six to thirty parts per million of arsenic. Baumberger estimated that the average cigarette smoked yields 3.78 mgms. of nicotine and that 66 per cent is absorbed by the mouth and up to 88 per cent when inhaled. Maddock and Coller substantiated this by giving the same amount intravenously to habituated human subjects and produced the same effect on blood pressure, pulse rate and surface temperature as the inhaling or smoking of one or two cigarettes. It also has been proved that the paper was negligible and of no moment by Barker, Wright and Moffitt.

In an experimental study by Fisher[3] and Berry on fifteen physical directors, smokers and non-smokers, they noted the following:

1. *Rate.* Cigarette smoking caused an increase in the heart rate. This is verified by Bastedo[4] and Maddock and Coller; the latter two observed in smoking medical students a regular rise from eight to thirty-eight beats from a single cigarette, with a return to previous rate in five to thirty minutes.

2. *Blood Pressure.* Cigarette smoking maintained a blood pressure which, under the circumstances of the experiment, would otherwise have dropped. Bastedo[5] states that the blood pressure may rise with each smoke, even in habitual smokers. Maddock[6] and Coller noted that in eleven young men accustomed to smoking twelve to twenty cigarettes a day, a single cigarette resulted in a systolic increase of 8 to 20 mm. and a diastolic increase of 0 to 25 mm., with a return to the previous level in five to thirty minutes. Nicotine tartrate intravenously in theoretically corresponding doses acted in a similar manner.

On the other hand, there may be no drop or change in blood pressure to the point of giving the familiar symptoms of collapse.

Thomson[7] and Sheldon found that one cigar raised the pressure in 35 per cent, lowered it in 45 per cent, the results being variable from day to day in the same patient.

Albutt[8] found tobacco not a cause of high blood pressure. Lauder[9], Brunton and Rolleston find that immoderate smokers tend to have low blood pressures. Fisher[10] and Berry, Parkinson and Koefod have found an unraised or raised blood pressure in the horizontal position, while in the erect position or after mild exercise there was a significant failure of the circulatory system to respond to added work.

Schrumpf-Pierron[11] note that since the war the number of young persons having hypertension has increased. This they feel is due to the greater amount of smoking in young adults, and corroborated by the fact that these blood pressures return to normal with the cessation of tobacco. Bates[12] in 1922 showed some increase in systole and diastole, but not any more unusual than seen from various other causes.

Experimentally these seemingly confusing contradictory statements regarding rate, rhythm and blood pressure can be explained to the satisfaction of all by the work of Hett[13]. He experimented on the isolated heart of the frog, using nicotine, and noted that it affected the cardiovascular system in two different ways:

1. Action on the Heart—

(a) Acted on the pneumogastric nerve, causing a decrease in cardiac rate, which may proceed to diastolic stoppage; tachycardia was the usual end-result.

(b) Action on the intracardia conducting elements, causing extrasystoles and even auriculo-ventricular block.

(c) Action on the cardiac muscle itself, resulting in a lessening of its electrical excitability.

These effects confirmed the work of Clerc[14] and Wiener.

2. Action on the Arteries—

(a) Small doses of nicotine produce, by irritation of the vasmotor centers, vasoconstriction and the resultant higher arterial tension, and are usually accompanied by bradycardia.

(b) Strong doses induce, by paralyzing the same centers, vasodilatation, which causes lower arterial tension and tachycardia.

Animals[15] given small doses of nicotine over a long period suffer from hypertrophy of the heart, with changes in the myocardium and sclerosis of the coronaries, as well as lesions of the intracardiac ganglia and hypertrophy of the cortex of the suprarenals.

CLINICAL STUDY

According to A. Grollman[16], tobacco increases the cardiac output more than the oxygen consumption, at least in subjects who are not frequent users of these drugs.

Harrison[17] states that in people with congestive heart, it is best that the cardiac output be not increased because it is desirable to keep oxygen consumption down and decrease the tissue need of blood.

In a study of extrasystoles Boas[18] and Levy mention that extrasystoles can arise from an irritable focus either in the auricles or ventricles as a result of the toxic action of tobacco; however, with the removal of the offending agent the extrasystoles will disappear.

An example of unifocal irritation is cited in the following:

Case 1: A male Hebrew, age 45, from Charleston, West Virginia, complained of precordial pain of a dull aching character and constant annoyance of palpitation and periods of tachycardia. This individual was of the nervous, high strung, geared type of business man. Through the years he developed the habit of smoking fifteen to twenty cigars a day. On palpation and auscultation these abnormal beats with their compensatory pause were noted as having a rhythmical sequence and interruption. The electrocardiogram in Figure 1 shows trigeminal extrasystoles.

E. K. G. shows trigeminal extrasystoles with right axis deviation and left axis deviation with regular rhythm. Q. R. S. notching Lead 1 and 3. Infra auricular extrasystoles (nodal rhythm).

Exercise threw this patient into a transient attack of auricular fibrillation. This was denoted by a complete arrhythmia of rate and force of the cardiac impulses with a pulse deficit of twenty-two. Regret that I overlooked to make an E. K. G. to check my physical findings. I understand that this patient now smokes one cigar a day, has improved in his general physical being, and is able to work harder without being heart conscious.

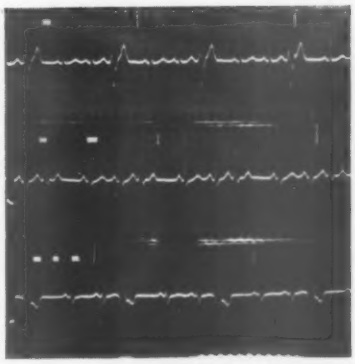

Fig. 1.—Case 1.

Case 2: An example of multifocal irritation in which the diagnosis of paroxysmal auricular fibrillation is made. This concerns a male Hebrew, age 36 years, who has been smoking the past eleven years, cigarettes, cigars and pipe. Within the last five years this individual has been smoking an average of three cigars, ten cigarettes and occasionally the use of his pipe during a day's session. This patient is of a nervous temperament and tobacco would have a double action on his nervous system; little smoking would have a soothing, sedative action, while a great deal of smoking would make him highly nervous and perspire freely. Toward evening a sensation of palpitation would occur with occasional precordial pains—from a dull aching character to a sharp shooting twinge. At bedtime this

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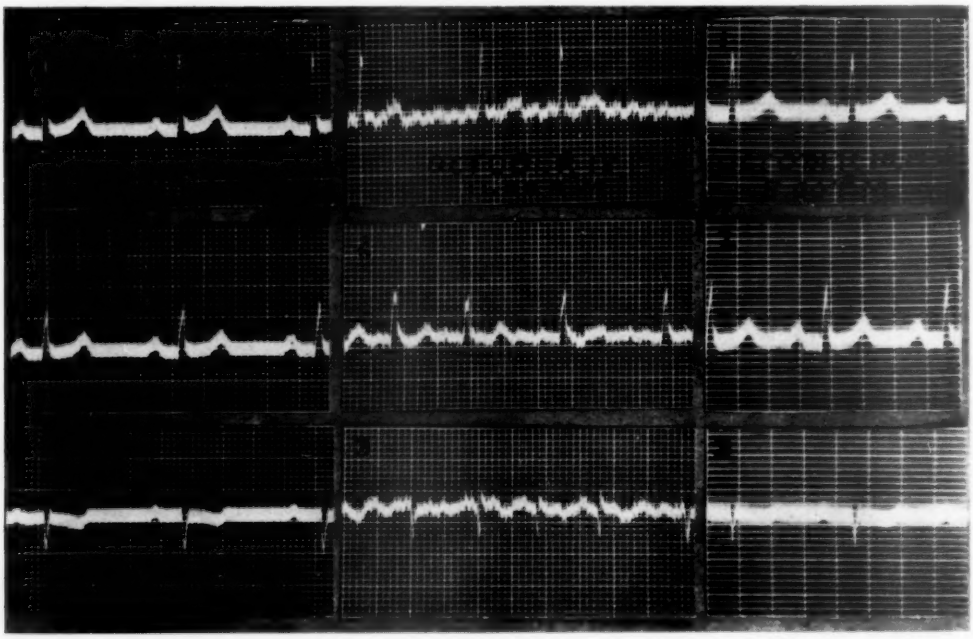
patient would be conscious of a pounding sensation of the heart. Also, with the use of a great deal of tobacco there would occasionally occur an itching of the skin and sporadic urticarial wheals. He was highly sensitive to tobacco smoke and with his frequent smoking developed an irritative type of cough. The heart rate would increase and his blood pressure would vary from 125/80 to 132/90. In arising in the morning he would feel groggy and at times dizzy. His sense of enjoyment of smoking was such that he continued, despite these symptoms and signs until October 16, 1936. On this particular day he was deeply interested in some lecture work away from home and smoked several cigars. At approximately 5 P. M., he became aware of some twitching precordial pains and a sudden tumultous upheaval taking place in the cardiac area. The cardiac rate was 140 and the pulse rate was 110, the cardiac impulse and radial pulse being totally irregular in rate and rhythm; there was no peripheral vessel pulsations and the only outward signs were a pallor of the skin with slight cyanosis of the mucous membranes. The pounding was sufficient to keep the patient up all night. It was noted that exercise increased the rate and irregularity and caused him to become dyspneic. The patient arrived home two days later, doing nothing from a medicinal standpoint as he was cognizant of the situation and stopped smoking completely on October 16, 1936. On October 18, 1936, at 11:00 A. M., an E. K. G. was made by me, showing these irregularities, and on the same day, at 6:00 P. M., the patient felt a sudden sense of relief with an absence of this irregular rhythm. Another E. K. G. was made at 8:00 P. M., and a normal cardiogram was noted.



a b c

Figure 2.—Case 2.

The following sequence is noted in the electrocardiograms:

(a) July 8, 1935—Normal electrocardiograms. The inverted T wave in Lead 3 has no significance. The left axis deviation is seen in the athletic type of individual.

(b) October 18, 1936, 11:00 A. M.—Despite the somatic tremors one can see the fff waves of fibrillation, the total irregularity of the force, and sequence of the Q. R. S. waves. Some of the Q. R. S. waves appear like multiple beats but upon caliper measurements they are not so.

(c) October 18, 1936, 8:00 P. M.—No irregular-

ities noted and the electrocardiagram appears like the one taken July 8, 1935.

We have a case here of sudden onset and sudden remission. The only treatment was the removal of tobacco. Since then this individual has completely stopped smoking and has had none of the symptoms and signs previously enumerated and has felt better than he has been feeling in years.

In regard to the disorders[19] of cardiac rhythm, we may add that extrasystoles occur commonly in young people. Some individuals will react to some brands of cigarettes and be free of extrasystoles with others. This is thought to be due to the type of volatile oils in the particular brand of tobacco used.

One case of sino auricular block was observed by Neuhof and no cases of auriculo ventricular block noted.

Albutt and Ortner showed that with extrasystoles they may give rise to symptoms of epigastric pain, gastric distention and oppression.

It was shown by Parkinson and Koefod that in normal healthy men the smoking of a few ciragettes may cause dyspnea on exertion and a condition simulating "soldier's heart" (D. A. H.).

Pain.—The most striking symptom that cigarette smokers are subject to is a precordial pain[20] which disappears with abstinence. These pains may be of a short stabbing character or may be a steady pain or soreness or simulate an anginal pain, the differentiation being that it is not attended with the feeling of fear and mental depression. The pain, as a rule, comes on at night when the patient is in bed. Chest pains due to tobacco may persist for several weeks after the cessation of tobacco. The strictly precordial pain disappears more quickly than the substernal pain. Often they are increased by deep breathing, with the result that the individual will breathe superficially, this condition being termed by Pick and Gy as "tobacco asthma." In chronic smokers the symptoms of aortitis and angina become more noticeable. These pains are thought to be due to either a myocardial ischemia produced by spasm of the coronary arteries or tobacco toxemia of the periaortic nerves.

Angina Pectoris.—We are often confronted with the problem as to whether tobacco should be restricted. There are two sensible ways of looking at this: our primary thought is that anything injurious to the human system should be removed or restricted as much as possible; the second point is, in view of the fact that angina patients have a limited time to live, i. e., four years, eight months as an average, why not let these people smoke in moderation if it affords them a sense of pleasure and comfort. Levine, of Boston, is of this latter opinion.

On the other hand, Logan Clendening[21] forbids the use of tobacco. He cites a case in which one of his patients gave up the use of tobacco for years, during which period he was free of attacks; then he decided to smoke a cigar and, after two puffs, induced an attack and died.

Tice[22] records four patients of angina pectoris who, upon discontinuing the use of tobacco, were free of anginal attacks for that period of time, but, upon their resumption of tobacco, fatal results occurred within the hour.

Harlow Brooks emphasized the fact that in tobacco angina the pulse is frequently arrhythmic and intermittent as a result of involvement of the neuro-muscular system.

Laubry[23], Walser and Deglaude showed in laboratory animals that large doses of nicotine caused constriction of the coronary arteries, and in the isolated heart of a rabbit small doses resulted in dilatation with increased coronary flow.

Bastedo[24] states that smoking may precipitate an attack of angina through the liberation of epinephrine from the suprarenals. In five patients Ralli and Oppenheimer demonstrated that promptly on smoking there was peripheral vasoconstriction followed by the paroxysm, the pain disappearing with vasodilatation.

With nicotine free tobacco extracts Harkavy found cutaneous sensitization in 4 per cent of twenty-six with general arteriosclerosis, while in those with coronary disease the reactions appeared in 36 per cent, showing the possibility of a sensitivity to tobacco in angina.

Peripheral Vascular Disease.—It has been noted that tobacco has an evident allergic reaction in conditions like (1) thrombo-angiitis obliterans, (2) Reynaud's disease and (3) arteriosclerotic conditions. Positive[25] intracutaneous tests seem to indicate that the peripheral vessels may be the seat of allergic reactions similar to the broncho pulmonary tissues of asthmatics. This thought was corroborated by Collens[26] and Wilensky in June, 1936.

1. *Thrombo-Angiitis Obliterans.*—Harkavy[27-28] injected .01 cc. of nicotine free tobacco extract intra-

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cutaneously and in eighty-seven male cigarette smokers suffering with this disease he obtained eighty-seven reactions, while in five cases of migrating phlebitis he obtained two reactions. He also got a 7 per cent positive reaction on forty-three non-smoking women. Barker,[29] at the Mayo Clinic in a group of 350 patients, ascertained that 1.4 per cent were non-users, 0.3 per cent were chewers, 6.8 per cent smoked cigars or pipe, and the remainder 91.5 per cent were cigarette smokers.

All observers agree that the severity of the disease tends to be greatest in heavy users, and is seen most frequently in the Jewish males. Maddock, Malcolm and Coller felt that this increased susceptibility in the Jewish race was due to their temperamental nature, with the result that they were more intensive, quicker, and took deeper inhalations than the Gentile subjects. Maddock[30] *et al* feel that, in view of the vasoconstrictor effect of tobacco, one could assume that in a thrombosed vessel, with this constant threat from the use of tobacco, gangrene of an extremity may follow. They therefore make a dogmatic "no smoking" edict in which there are peripheral extremity signs of impaired circulation.

2. *Reynaud's Disease.*—Maddock and Coller, and Barker, of the Mayo Clinic, and Wright and Moffitt showed that in habitual smokers, particularly cigarette smokers, the skin temperatures of fingers and toes will drop, even as much as ten degrees, this being a manifestation of vasoconstriction; this condition became more marked when the subject inhaled or smoked rapidly, and bore no relation to the length of habituation or number of cigarettes smoked. Maddock and Coller in two subjects blocked the posterior tibial nerve of one leg with procaine and found that smoking produced no effect in that leg but a marked effect in the other, an indication that the effect came through the sympathetic nerves. Wright and Moffitt also observed a momentary slowing or stoppage of the blood flow through the capillaries of the nail bed, all of which went to show tobacco as an etiological factor in producing vasoconstriction.

3. *Arteriosclerosis.*—There is a questionable doubt as to the harm that tobacco may cause in arteriosclerosis, as this condition is just as common in smokers as in non-smokers. However, in cases of obliterative endarteritis, with its intermittent claudication, Erb showed that tobacco had an etiological influence, while Schlessinger with 100 cases showed that thirty were moderate smokers and sixty were excessive smokers.

Blood.—Walters could find no significant difference between smokers and non-smokers. Vas, Velich and Petit have described an anemia and slight leucocytosis due to tobacco. Decaisne, studying the effects of tobacco on young children, states anemia may occur. However, these facts are not absolute and are open to question.

Morbidity.—Fiske[31], of the Life Extension Institute, in a survey of 15,000 smokers and non-smokers, showed that tobacco had no particular effect on individuals already suffering from hypertension, but that among excessive tobacco users an excess of 10 per cent of cases showed advanced and serious organic changes, an excess of 6 per cent showed arterial changes, and more than 15 per cent showed a toxic tachycardia.

SUMMARY

From the literature we glean the following outstanding effects on circulation, resulting from tobacco:

(1) A lowered cardiac efficiency, with diminished power of the heart to stand strain, and in some cases the excitation of premature or arrhythmical rhythm. This was demonstrated by the two case histories.

(a) Young adults recover quickly with the cessation of tobacco.

(b) It is conceivable that the continued use of tobacco may cause the development of an organic heart.

(2) Vasoconstriction—as a contributing cause of death in organic arterial disease.

(a) Not shown to be a cause of hypertension, although the blood pressure may be temporarily slightly elevated, and thus not necessarily forbidden.

(b) Coronary sclerosis and angina pectoris not significant except in those showing cutaneous reaction to nicotine free tobacco, or a toxic manifestation.

(3) In peripheral vascular diseases, such as thrombo angiitis obliterans, Reynaud's disease and intermittent claudication, tobacco is forbidden.

With these facts in mind, we quote Cornwall, "The tobacco heart appears to be mostly a matter of symptoms and functional disturbance, but one must not forget that a functional condition con-

tinuously abused through abnormal physiology may result in permanent structural changes. Tobacco, therefore, must be considered a toxic agent and our guiding rule must be the reactions as exhibited by our patients."

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Shenandoah Life Building.

THE PREVENTION AND TREATMENT OF THE FRACTURE DEFORMITIES OF THE LOWER END OF THE RADIUS.*

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Deformities of the wrist as the result of fractures are of more common occurrence than is generally supposed. The lower end of the radius is the part of the wrist joint which is most often affected, and it is the frequency of malunited fractures at this point which has stimulated the authors to present this subject.

A Frenchman by the name of Claude Pouteau in 1783 first described a fracture of the lower portion of the radius. In 1814 an Irish surgeon by the name of Abraham Colles described this same type of injury. Because of the writings of Smith in 1847 and his reference to the importance of the work of Colles, a fracture near the lower end of the radius is now spoken of as a Colles' fracture. However, there are a great many fractures of the lower end of the radius which are frequently called Colles' fractures but which are not of true Colles' type. The original description of a Colles' fracture referred to a transverse fracture occurring within the distal one and a half inches of the radius. Smith placed this fracture from one-fourth to one inch above the wrist joint, which is the location commonly accepted today.

Most physicians regard a Colles' fracture as very easy to reduce and to treat successfully. This is true, if the reduction and subsequent treatment are correctly done. However, as will be seen in the series of fractures presented in this paper, one-fourth of the patients with fractures of the lower end of the radius who came to the Duke Hospital for treatment presented old fracture deformities of the wrist due in most cases to improper management. In some instances the deformity was attributable to neglect on the part of the patient.

Stinson has made the statement that poor results are seen more often from Colles' fracture than from any other type of fracture. Bankhart has said that a Colles' fracture is at once the commonest, one of the easiest to treat, and generally the worst treated of all the fractures of the human body. The authors cannot wholly agree with the opinions of these two men but at the same time statistics of this series of cases show too many improperly treated Colles' frac-

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tures which have resulted in deformity and disability.

The title and introduction of this paper may imply that only old fracture deformities are to be considered. To treat properly and so prevent the fracture deformity one must have adequate appreciation, however, of the treatment of the fresh fracture; accordingly a discussion of the latter is also presented.

When an attempt to study fracture statistics in a large hospital is made, it should be realized that a great many cases are not completely indexed and are therefore lost for studies such as these. When the general hospital and private orthopædic files over a six-year period were reviewed, sixty-two records of fractures of the lower end of the radius were found. These represent an incidence of 8.4 per cent of all fractures observed in the hospital during this period and of 40 per cent of all the fractures of the bones of the forearm.

An analysis of these sixty-two cases shows five epiphyseal separations, or 8 per cent; forty-one fresh fractures, or 66 per cent; and sixteen old fractures, or 26 per cent.

CHART 1.
ANALYSIS OF FRACTURES OF LOWER END OF RADIUS

Type	*No.*	*Per cent*
1. Epiphyseal Separation	5	8
2. Fresh Fracture	41	66
3. Old Fracture	16	26
	62	100

There were 30 males and 32 females. Fifty of the patients were white and twelve were colored. The average age, exclusive of the group of epiphyseal separations, was 43.7 years. The youngest patient was 17 years and the oldest 77 years. The greatest number of patients were in the third, fourth, and fifth decades of life.

MECHANISM OF INJURY

Most fractures of the lower end of the radius result from falls on the palm of the outstretched hand. The fracture is due to a compression of the bone at the point of maximum stress. In this series approximately 70 per cent occurred as the result of a fall; 25 per cent resulted from automobile accidents, and 5 per cent were caused by cranking cars—the so-called "backfire" fracture.

CLINICAL FEATURES

A fracture of the lower end of the radius usually is manifested by pain, loss of function of the wrist and hand, and a variable degree of ecchymosis and swelling. Deformity may be present. If the fracture is of Colles' type, this may be the "silver fork deformity" with displacement of the hand towards the radial side and prominence of the lower end of the ulna. All attempts at motion or manipulation are painful. If the fracture is impacted without displacement of the lower fragment, there may be very little pain and swelling. This is especially true in older people and leads often to the diagnosis of sprain. Because of the persistence of pain and disability a roentgenogram is made, and this may show a dorsal compression of the lower end of the radius and a backward tilting of its lower articular surface.

If the early fracture deformity has remained uncorrected for as long as two weeks it is classified in this series as an old fracture. If union has taken place with malalignment of the fragments, the deformity will persist or increase. The early acute pain will lessen and gradually disappear, but pain on motion will remain. The disability tends to become permanent. If the patient has a rheumatic tendency, an acute arthritis may develop, resulting in marked pain and swelling of the wrist, knuckles and fingers. This complication was present in 7.2 per cent of 424 cases reported by Edwards and Clayton.

TREATMENT

The treatment of the fresh fractures is immediate reduction under general or local anesthesia, the fragments being restored to their normal position as accurately as possible. After an accurate anatomical reduction, an excellent functional result can usually be expected. The technique of the reduction is simple. Pressure is applied directly over the small lower fragment as the wrist is flexed and carried into ulnar deviation. The hand and wrist are usually maintained by accurately fitting splints in a position of moderate flexion, pronation, and ulnar deviation.

Plaster is by far the most satisfactory splinting material; the bivalved circular plaster cast, anterior and posterior plaster splints, and the sugar tong plaster splint—are each very satisfactory when properly applied. The authors do not favor board splints for displaced fractures which require reduction. The metal splints sold by commercial splint companies should be used for those fractures which require only partial immobilization and not for those fractures in which reduction is necessary. Platt has said that in 75 per cent of the fractures there is a displacement requiring reduction. The authors believe that

in all impacted fractures the impaction should be broken up.

There is a difference of opinion as to the length of time for which a fracture of the lower end of the radius should be immobilized. The period varies from two to six weeks. Some authorities prefer to start motion of the wrist early, that is, on the eighth day; others prefer to wait three weeks. It is safer to start early wrist motion in the young adult than in the older one. Active and passive motion of the fingers and thumb, however, should be insisted upon immediately after reduction, and the patient should be urged to continue this motion until the maximum improvement has been reached. At the same time, the elbow and shoulder should be put through a full range of motion two or three times a day. It is a pathetic situation when a patient has a good anatomical and functional result of the wrist and hand after a Colles' fracture but has a stiff shoulder joint. The attending physician should caution the patient about the danger of allowing the shoulder to remain at rest for too long a period and should insist on a full range of active motion daily from the time treatment is begun.

Too much emphasis cannot be placed upon extending the splints to the knuckles posteriorly and to the middle of the palm anteriorly. When the splints are carried distal to this point, however, so that the metacarpophalangeal and the phalangeal joints cannot be moved, a so-called "frozen hand" often results. This is a tragic and totally avoidable complication in the treatment of what may be a very simple Colles' fracture. The older the patient, the greater are the dangers of stiffening in the smaller joints of the hand. Six to eight weeks of rigid immobilization of the fingers in an older person may result in complete loss of use of the fingers for life. This is the worst mistake which the attending physician can make and, sad to relate, the practice of an orthopædic surgeon is seldom free from examining many of these hands each year. Cotton has said that the untreated case may do better than the poorly treated one, because of the splinting which so often is continued too long. In studying our series of old fractures we find many times that this statement is true.

It is unfortunate that X-ray files are seldom found to be complete, even when it is most desired that they should be. Many of the roentgenograms for this study could not be located. There were only sixteen fresh fractures with roentgenograms before and after reduction, and six old fractures with a roentgenogram before and after manipulation or operation.

FRESH FRACTURES

In the group of forty-one fresh fractures, nine, or 22 per cent, showed dorsal impaction without displacement. Of the entire group of fifty-seven fractures, nineteen, or 33 1/3 per cent, showed a fracture of the styloid process of the ulna. This percentage is lower than recorded in statistical studies from other clinics. Ghormley and Mroz report 63 per cent in 176 cases, while Edwards and Clayton record 44 per cent in 424 cases.

In the roentgenograms an accurate determination of the lateral and anteroposterior angles of the wrist joint, i. e., those formed by the shaft of the radius to its articular surface, has been made. The lateral angle normally measures from 70 to 80 degrees (Fig. 1) and the anteroposterior angle from 104 to 110 degrees (Fig. 2). After a typical fracture of

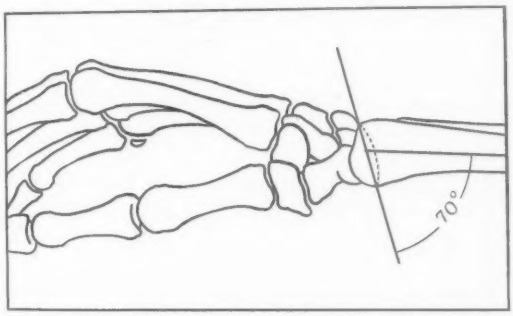

Fig. 1.—Lateral view of the bones of the wrist showing a normal angle between the shaft of the radius and its lower articular surface.

the lower end of the radius in which the lateral angle is greater and the anteroposterior angle is less than the normal limit, it can be definitely said that there is a tilting or displacement of the articular surface which, if allowed to remain, may result in a painful disability of the wrist.

In the thirty-four fractures with roentgenograms before reduction, the average lateral angle is 100 degrees and the average anteroposterior angle is 104 degrees (Chart 2). This group includes, however, impacted fractures and also those which do not require reduction. In the twenty-three post-reduction roentgenograms, the average lateral angle is 85 degrees and the average anteroposterior angle is 106 degrees.

Of the sixteen fractures in which both pre- and

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post-reduction roentgenograms are available, the average lateral angle is 107 degrees and the average anteroposterior angle 102 degrees before reduction; after reduction the lateral angle is 85 degrees and the anteroposterior 107 degrees. These post-reduction angles are essentially the same as the averages for the entire series of fractures.

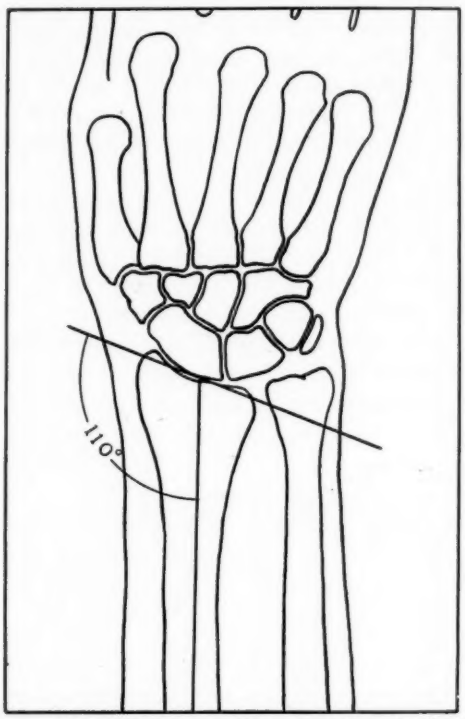

Fig. 2.—Anteroposterior view of the bones of the wrist showing a normal angle between the shaft of the radius and its lower articular surface.

OLD FRACTURES

In the sixteen old cases, the average time from the date of fracture to the date of examination was 40.2 weeks, the shortest being two and a half weeks, and the longest two hundred and sixty weeks. The average age of these patients was 44 years. Fifteen of the sixteen cases with posterior displacement and ulnar deviation showed an average lateral angle of 111 degrees and an average anteroposterior angle of 101 degrees (Chart 2). This average lateral angle is 11 degrees greater than the average for the whole series of fresh fractures and only four degrees greater than that for the fresh fractures which were satisfactorily reduced. Of this series of old fractures, six were manipulated or operated upon; in only four of these, however, were the angles changed. Of these four cases the average lateral angle before operation was 126 degrees and the average anteroposterior angle 99 degrees; after operation the average lateral angle was 99 degrees and the average anteroposterior angle 103 degrees. These figures demonstrate a distinct improvement after operation.

In the six operative cases four types of procedures were carried out:

CHART 2.

AVERAGE OF LATERAL AND ANTEROPOSTERIOR ROENTGENOGRAPHIC ANGLES OF THE WRIST IN FRACTURES OF THE LOWER END OF THE RADIUS

Type	*No.*	*Lateral*	*Anteroposterior*
1. Normal		70-80°	104-110°
2. Fresh (Before Treatment)	34	100°	104°
Before Manipulation	16	107°	102°
After Manipulation	16	85°	107°
3. Old (Before Treatment)	15	111°	101°
Before Operation	4	126°	99°
After Operation	4	99°	103°

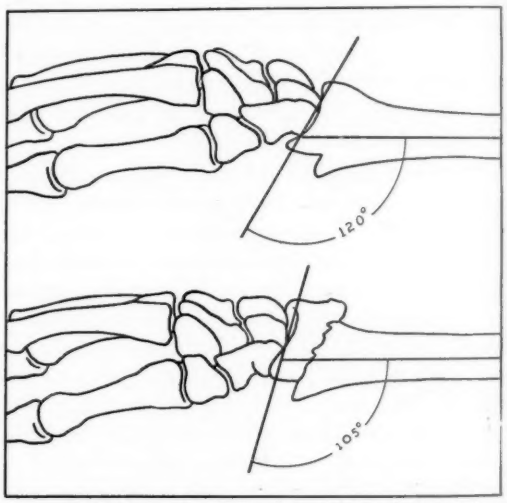

Fig. 3.—Lateral views of an old malunited Colles' fracture before and after osteotomy. The upper drawing shows a lateral angle of 120° which by osteotomy has been reduced to 105°. The end-result was an improvement of the deformity and a lessening of the disability. (After roentgenograms.)

1. *Osteotomy.*—In one patient an osteotomy performed ten weeks after fracture resulted in improved function and appearance. In a second patient an osteotomy performed thirty-two weeks after the fracture resulted in improvement of the anatomical position and function (Fig. 3).

2. *Arthrodesis.*—Arthrodesis was performed in one case eighteen months after the date of fracture. The arthrodesis was performed between the lower end of the radius and the scaphoid. The operation resulted in a decrease of pain in the wrist.

3. *Excision of Lower End of Ulna.*—Removal of the lower end of the ulna was performed in one case, that of a boy of nineteen, the operation being performed five years after the fracture (Figs. 4 and 5). It resulted in great improvement of the appearance and function of the hand.

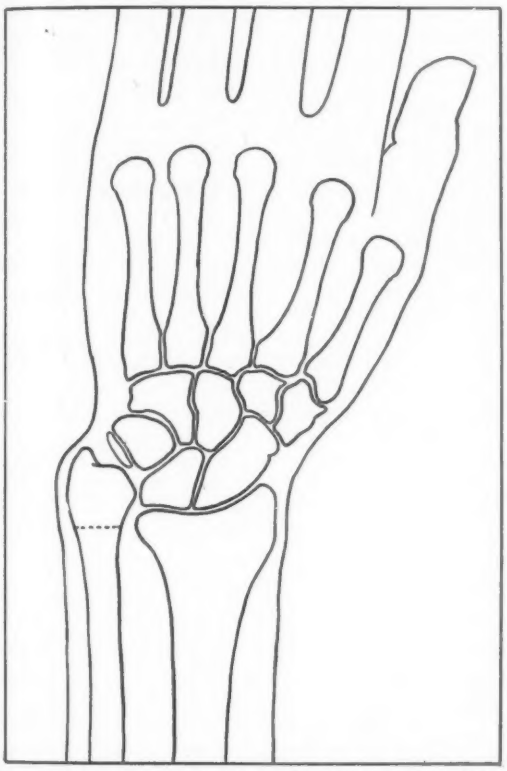

Fig. 4.—Anteroposterior view of an old malunited fracture of the lower end of the radius showing marked prominence of the lower end of the ulna and radial deviation of the hand. The level of the osteotomy of the ulna is indicated by the dotted line. (After roentgenogram.)

4. *Manipulation.*—Two patients, one of 27 years, the other of 35 years, were treated by manipulation with the Thomas wrench. One of these fractures was of four weeks' duration and the other of eight weeks' duration. In each the manipulation was followed by marked improvement in the position of the fragments.

Unfortunately, a careful end-result study to determine the functional results of these wrists has not been made. It is the opinion of the authors, however, that in each instance the procedure was definitely indicated and successful.

This study shows that fracture deformities of the wrist are of common occurrence. In the opinion of the authors most of these complications can be avoided if the doctor treating the case will follow the accepted principles of treating these fractures. In most instances the permanent deformities are definitely preventable.

The basic rules in the care of fresh fractures of the wrist are:

1. Immediate accurate reduction. Do not wait for the swelling to go down.

2. Adequate immobilization, preferably in plaster splints or a bivalved cast which does not extend distally beyond the knuckles and the middle of the palm and so allows full motion of the thumb and fingers.

3. Daily active and passive exercise of the elbow, shoulder, thumb and fingers after reduction.

4. If possible, daily heat and massage, and active and passive exercise of the wrist from the time the splints are removed to the time of maximum functional recovery. If this can be done under the observation of a trained physical therapist or physician,

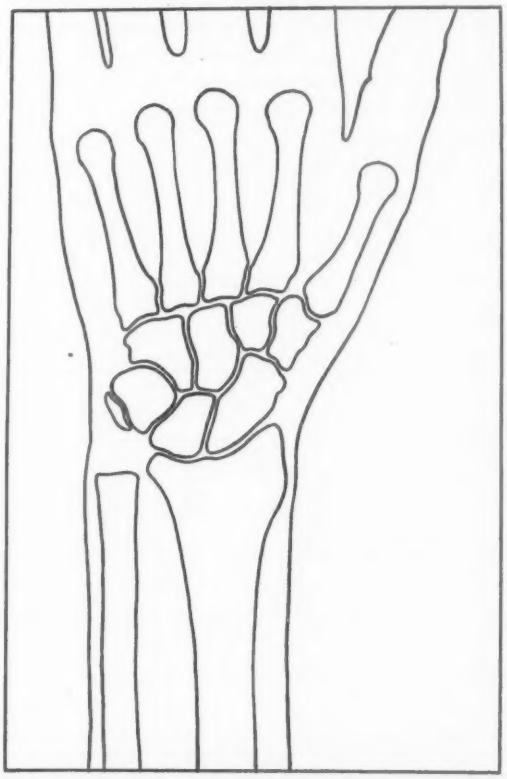

Fig. 5.—Postoperative anteroposterior view of the malunited fracture of the lower end of the radius shown in Figure 4. The lower end of the ulna has been resected. Note the complete correction of the radial deviation of the hand, which resulted in a marked decrease in the disability. (After roentgenogram.)

heat and massage can be started safely after the first week by removing the dorsal splint for this treatment and reapplying it afterwards.

5. Insist on a roentgenogram before and after reduction. Courts and lawyers expect and require doctors to show both of these roentgenograms. If they cannot be produced in court an unfavorable impression is created. Platt has said that "to undertake the diagnosis and treatment of any injury of this type without radiographic control is to court disaster".

Most of the patients with old fracture deformities who seek the services of the orthopædic surgeon express themselves emphatically as to their previous treatment and are obviously thinking of a malpractice suit. Practice preventive fracture therapy as outlined and so avoid the unpleasant complications which may otherwise result.

CONCLUSIONS

1. An analysis of a series of 62 fractures of the lower end of the radius is reported.

2. In this series the lateral and anteroposterior angles of the shaft of the radius to its lower articular surface have been determined in the roentgenograms before and after reduction or operation.

3. Sixteen, or 26 per cent, of the cases are old fractures presenting deformity and disability.

4. In 6 cases, or 37½ per cent, of these old fractures, an operative procedure was indicated and performed to improve the appearance and function of the wrist.

5. The treatment of the fresh fracture is presented with brief mention of the avoidable complications.

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PHYSIOLOGIC DISTURBANCES OF THE ERECT POSTURE.*

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Just as anatomical and functional changes in man have apparently resulted from the gradual assumption of the erect posture during phylogenesis, similarly, there occur physiologic responses to the disturbances produced by an immediate change from the recumbent to the standing position. Among

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these we find widespread alterations in the circulatory and respiratory systems, cerebrospinal fluid, metabolism, and even in urine secretion. All of these changes are caused ultimately by the effect of gravity. Some are the passive results of the altered hydrostatic pressure of the blood, others are secondary to compensatory circulatory reflexes, and the rest are concerned with the increased muscular work necessary to maintain the body in such an unstable position.

a. *Arterial and Cerebrospinal Pressure.* When a horizontal system of elastic fluid-containing tubes, such as the recumbent human, is stood on end, the pressure at the lower end is increased by the weight of the vertical column of fluid above it; passive dilatation of the tubes at the lower end occurs, thus increasing the capacity of the system, and the pressure at the upper end therefore drops. This has been proven in the human in both the blood circulatory system and the cerebrospinal fluid system. When a subject's position is changed from horizontal to vertical, the systolic pressure in the carotid arteries drops (c. 20 mm. Hg.), that in the brachial artery rises (c. 20 mm. Hg.) and in the femoral artery pressure increases considerably (c. 36 mm. Hg.) (Loman *et al.* a). The pulse pressure diminishes, probably due to vasoconstriction and cardiac acceleration (Erlanger and Hooker). The pressure of cerebrospinal fluid as measured in the cisterna magna is now negative, while in the lumbar area it is markedly increased (c. 4x supine value) (Loman *et al.* b).

However, the potential extent of these passive changes in blood pressure has been diminished by compensatory vasomotor reflexes, probably mediated through the vasomotor center which has been reflexly stimulated by diminution in pressure in the aortic arch (Marey's reflex) and in the carotid sinuses. In consequence, we consider that vasoconstriction of arteries occurs in the lower part of the body, especially the splanchnic area and legs, with possible splenic contraction, which increases resistance and diminishes circulatory capacity, thus preventing too great a drop in blood pressure in the upper portion of the body, especially the brain. If such compensatory vasoconstriction does not occur, owing to poor vasomotor control, the blood pressure drops so far that cerebral ischemia and syncope ensue. This is seen in patients with postural hypotension or during convalescence from a severe illness.

At first sight, one would expect that the blood pressure in the carotid sinuses should be returned to normal, i. e., that due to the diminished pressure there, stimulation of the sensory endings would continue to bring into play such compensatory reflexes as vasoconstriction and increased cardiac output until the blood pressure in that area is restored to normal. Why this does not occur, instead of the pressure remaining permanently at a lowel level, we cannot say. However, it is possible that a balance of power now obtains between the aortic arch reflex and the carotid sinus reflex. The tendency of the lower blood pressure in the carotid sinuses to cause further elevation of the blood pressure, may be physiologically inhibited by the fact that the pressure in the aortic arch is even greater than when lying down and thereby tends to prevent further rise. Thus the differential in pressure between aortic arch and carotid sinus may be an index of the balance between the relative efficiencies of these two regulatory reflexes. It may be more than coincidence that the average drop in carotid sinus pressure approximates the average rise in brachial pressure, which latter may be considered an index of aortic arch pressure. The pressure in the aortic arch is probably slightly higher than in the brachial artery.

However, this difference in pressure (40 mm. Hg.) between carotid sinus and aortic arch is far greater than could be explained on the basis of hydrostatic pressure alone. Since the distance between aortic arch and carotid sinus is too small to produce more than half this difference of 40 mm. Hg. solely through hydrostatic pressure, we must postulate that the resistance to flow in the cephalic vessels may now be much less than elsewhere. This could be explained by the vasoconstriction in the body already mentioned, aided by active vaso-dilatation in the brain. Perhaps this latter possibility would be assisted by the negative pressure of the cerebrospinal fluid. This would serve to facilitate cerebral circulation, which tends to be at a disadvantage in the erect posture. The conclusion that vaso-dilatation of the cerebral arteries occurs, is supported by the observation that in the dog the drop in arterial blood pressure following stimulation of the carotid sinus nerve is accompanied by dilatation and increased

blood flow in the cerebral vessels (Gollwitzer-Meier *et al.*).

Compensation of the cephalic circulation by vasodilatation is not complete, since venous return in the internal jugular is diminished and its oxygen saturation lower (c. 1 to 2 per cent) than when lying (Loman and Myerson).

b. *Heart.* Besides attempting to overcome the drop in blood pressure of the upper portion of the body by vasoconstriction, the human mechanism has still the possibility of maintaining the pressure by increasing the minute output of the heart, reflexly through the aortic arch or carotid sinus, by increase in rate or increased systolic output. The heart rate is generally faster (c. 15 per min.) on standing (Erlanger and Hooker) which might be expected, but, oddly enough, Grollman determined that the cardiac minute output is unchanged or but slightly reduced. We can then conclude that vaso-constriction suffices to maintain blood pressure without calling upon the cardiac reserve, although the cardiac acceleration then seems inexplicable, for why should the constant minute output be maintained by acceleration of rate and diminution of systolic output? Perhaps the increased aortic pressure, diminished venous return, or decreased blood volume may play a part.

c. *Veins.* The increase in hydrostatic pressure of a vertical column of blood is shown in the increased venous pressure and stagnation in the dependent areas, which should materially interfere with venous return to the heart. Diminished venous pressure in the upper areas of the body will also occur, as in the jugular vein, which would facilitate venous return from the brain. Contraction of the poorly-muscled veins in the lower areas may play some part in offsetting this disadvantage to the circulation, and as we will see later, the increased pulmonary ventilation which occurs on standing must likewise play an important part in pumping venous blood back to the heart against gravity. Rhythmical contraction and relaxation of the leg muscles during normal quiet standing facilitates this return by milking the blood along in the veins. The increased tone of these muscles mechanically prevents passive distention of the veins in the legs, and the increased arterial and capillary pressures forces the venous blood along. There is an increased tone of the abdominal muscles as well, which by increasing the pressure in the abdomen would prevent stagnation of venous blood in that area.

These factors therefore may tend to prevent the venous pressure in the foot veins from increasing by the calculated hydrostatic pressure of 120 cm. of water, although Youmans did find approximately that value on *passive* standing.

d. *Tissue fluid.* Because of the increased hydrostatic pressure in both arteries and veins of the lower portions of the body, there is apparently a greater rate of filtration of tissue fluid from the capillaries, which fact may explain the concentration of the formed elements and protein of the blood in the erect position. Likewise, the increased tissue fluid, plus the interference of gravity with lymph drainage from those areas must be responsible for the subclinical, postural edema of the hands and feet of normal subjects, when standing quietly, when the pumping effect of the skeletal muscles on lymphatic and venous flow is minimal. This loss of fluid must also be the causation of the diminution of blood volume.

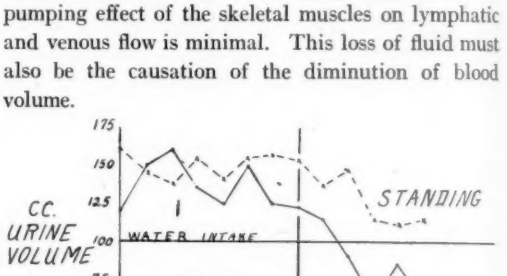

Fig. 1.—The diminution of urine output upon standing. 100 cc. of H_2O was ingested every ten minutes, for one hour before, and during experiment. Similar results are obtained with 50 cc. intake.

e. *Blood.* Because of the loss from the circulatory system of a protein free filtrate, the characteristics of the blood are altered. There are increases in the erythrocyte count, as from 4.3 to 4.8 M./cmm., in specific gravity (c. 0.002), and in plasma protein (c. 1.0 gm./100 cc.), and diminution in the water content of the plasma (c. 09/gm./100 cc.), and in total plasma volume (c. 300. cc.). These changes occur within twenty to thirty minutes after standing. The mixing time of the dye used for determining plasma volume was markedly prolonged in the standing position, probably due to vaso-constriction (Thompson *et al.*). The volume of the leg increases (c. 300. cc.) as does the colloid osmotic pressure of the blood (c. 40 per cent) (Youmans *et al.*). This increase in erythrocyte and protein concentration should also produce a higher blood viscosity.

f. *Kidney.* The diminution of urine formation in the erect position to approximately one-third of the quantity produced when lying may be due to the increased protein concentration of the blood, loss of fluid into the tissues, and diminution in blood volume. The resulting rise in oncotic pressure of blood proteins would naturally interfere with glomerular filtration. Very likely, vaso-constriction, as probably occurs generally throughout the splanchnic area, may diminish urinary output. I had hoped that the rate of diminution in urine formation on standing after lying might solve the question as to whether vaso-constriction or protein concentration was involved. If renal vaso-constriction were most important, the rate could be expected to drop to its new low level immediately; if due to protein concentration, the rate might change but gradually. However, as Figure 1 shows, the rate of urine secretion reaches the new low level within twenty to thirty minutes, which is exactly the rate at which the plasma volume diminishes (Thompson *et al.*). Marked variations in both total amount and concentration of the urinary constituents occur, as a diminution in urea, bicarbonates, and chlorides (White *et al.*).

g. *Respiration.* Liljestrand and Wollin showed that on standing, there occurred an increase in pulmonary ventilation (2 to 3 lts. per min.) and rate (5 to 10 per min.) and a diminution in CO_2 tension of the arterial alveolar air (c. 0.5 to 0.75 per cent). This increased respiration is probably due to reflex stimulation by the diminished pressure in the carotid sinuses, and must be responsible for the diminished CO_2 tension (Main). In turn, this washing out of CO_2 from the blood produces a mild alkalemia, the venous pH increasing about 0.05. This diminution of CO_2 tension and resulting alkalemia remind us that if carried far enough, a paralysis of the vasomotor center would ensue. Perhaps then, the syncope of postural hypotension may in part be due to extensive over-ventilation because of a marked primary drop in carotid sinus pressure, with further secondary diminution in blood pressure due to the paralysis of the vasomotor center by acapnia.

As previously mentioned, this increase in respiration must facilitate the venous return, which is being hindered by the effect of gravity.

The vital capacity (c. 0.3 lt.) (Bohr) and reserve air (c. 1 lt.) (Wilson) also increase in the erect position due either to the fact that the abdominal viscera no longer hinder the excursions of the diaphragm, or else that engorgement of the lungs with blood occurs while lying down.

h. *Metabolism.* The metabolic rate increases as indicated by greater oxygen consumption (Grollman) apparently because of the augmented oxygen utilization of the contracting muscles, which in turn may be responsible for the elevation of body temperature on standing (c. 55° C. rectal) (Kleitman and Doktorsky). Since loss of water through skin and lungs is directly proportional to the metabolic rate, we may expect an increase in the "insensible perspiration" as well, since even when sitting, approximately 5 gm. more of water per hour is lost than when supine (Benedict and Root). The increased pulmonary ventilation would be responsible for part of this increase. The skin temperature of the leg drops on standing, due to vaso-constriction (Youmans).

i. *Miscellaneous.* Finally, we can but mention some of the remaining physiological alterations concerning which we know so little: the increased activity of the central nervous system in sending impulses to the contracted muscles responsible for maintenance of posture, the probable greater number of sensory impulses coming from the proprioceptors of the muscles, tendons, and joints, the altered pattern of action currents of the eighth cranial nerve arising from the changed position of the otoliths of the internal ear, variations in blood velocity, and the innumerable alterations in the blood constituents involved in the chemistry of the mild muscular exercise of standing.

Conclusion.—The manifold functional variations occurring in the human body upon assuming the erect position indicate that man is not yet completely adapted to the erect posture, and that such a simple act as rising involves appreciable physiologic effort. Again, these disturbances remind us that physiologic compensation, although often surprisingly good, is seldom perfect.

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SOME OBSERVATIONS IN EIGHTY CASES OF HEAD INJURY.*

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To evaluate the results of any type of clinical treatment, it is occasionally helpful to review the records of a series of cases, not only with the viewpoint of finding the actual statistics in the immediate series, but also with the hope that something may be gleaned which will be of value in the handling of similar cases in the future.

While eighty cases of injury to the cranium and its contents do not represent a large series, it is sufficient to allow for some conclusions of a comparative nature. The cases selected here are of variable degrees of severity in character, but all were sufficiently alarming in their clinical manifestations to require hospital admission and care. The major portion were seen through the neurological service of the Roanoke Hospital. The others are represented by patients followed either directly or as consultant on the services of the other hospitals in the city and several seen in consultation and followed in the hospitals of near-by towns.

As far as possible, effort has been made to follow the patients since recovery from the acute injury, especially as to the success of the patient to rehabilitate himself socially and economically.

Details of treatment will not be discussed specifically in this paper. I have outlined my ideas in this regard on other occasions, and will not bore you with repetition. It has become my feeling that any attempt to lay down dogmatic principles of treatment is not only unreasonable, but confusing. The most debated point in head injury therapy, that of spinal drainage, should be applied to the specific patient in question, and not to the theoretical possibilities. The same practical viewpoint should determine our procedure in all head cases. Spinal drainage was used freely in this group of cases, and I think is our most valuable method of treating general concussion with edema. Experience has shown that no standardization of treatment is possible that will cover an important percentage of cranial injuries. No two head injuries are ever similar. The patient's reaction to the acute trauma varies not only with the force involved in production of the injury, but also with the age, economic status, and general physical condition of the patient at the time of injury. In these cases we have attempted to give due consideration to all factors involved, making every effort to avoid complications when we could, and if this was impossible to treat them according to the indications in each individual case.

The point of most importance, I believe, is a very careful and complete examination at the time of the injury and the necessity for frequent periods of observation thereafter. It is only in this way that the complications can be recognized and treatment be instituted in time to be of benefit to the patient. There is no group of patients requiring such careful and repeated observations nor any group in which complications result in death with such certainty and rapidity as in this type of case.

Estimation as to prognosis is especially difficult and treacherous in head cases, and the force used in the production of the injury, as a prognostic aid, is frequently misleading. Two cases in this series, both children, died as a result of very trivial accidents. One fell from a bottom step to the ground, and died the next day of a laceration of the left temporal lobe, as shown at autopsy. Another fell from the door of a slowly moving car and died suddenly three days later. Others have had tremendous force exerted against the skull at the time of injury with rather an uneventful recovery. It is my opinion that the one most valuable prognostic sign in head injuries

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is the change in consciousness, with the exception of the cases comprising brain hemorrhages, especially the middle meningeal type. Generally speaking, the patient who shows sign of early mental clearing after an injury probably has a good outlook. Long continued unconsciousness, twenty-four hours or longer however, indicates presumptive signs of severe injury, certainly more than a simple concussion of the brain. Return to unconsciousness after a fairly clear interval is always the sign of complications, usually hemorrhage. In spite of the great value of the state of consciousness as a prognostic and diagnostic aid, the other clinical observations—pulse, blood pressure readings at frequent interval, eye studies, reflex changes, and other examinations—should not be neglected.

As to shock in injuries about the head, an analysis of these and other cases seems to me to indicate shock is much less severe and lasting than in comparable injuries elsewhere in the body. While some shock does occur no doubt, and this should be an important consideration in the early treatment, I am convinced that severe shock points more frequently to coincidental injury elsewhere than to the injury to the head as the productive factor. Patients who die within a short period after a severe head injury die, in my judgment, almost invariably from rapid medullary compression due to hemorrhage or edema rather than from acute traumatic shock. Patients suffering from head injuries alone, as a rule, have a well-maintained circulation, pulse and blood pressure, even to the point of death from medullary compression. I very much doubt if shock entered into the mortality rate included in this series. The same holds true for operative shock in these cases. Its rarity is probably due in part to the relatively small amount of trauma necessary in cranial operations secondary to injury. Whether the operation is for relief of hemorrhage, elevation of depressed fragments or decompression for edema, the procedure is rarely prolonged or extensive. It is unusual for the findings to indicate a massive operation in cranial injury.

As to operative indications, at times surgical interference is definitely indicated, as in sub-dural hemorrhage with homolateral dilatation of pupil and signs of pressure, and in the middle meningeal type hemorrhages with the clear-cut history of trauma followed by the lucid interval with increasing and rapidly progressive drowsiness and respiratory failure. The indications are also clear in depression of fragments but in the larger proportion it is a question of individual choice. It is the case that is losing ground steadily, with obvious fatal termination the ultimate end, that presents the greatest problem. This is especially true if no localizing signs are present on neurological examination. Should these cases with death virtually certain by conservative treatment measures be given the long shot benefit of an exploration? There is frequently the feeling that there may be a localized clot, in spite of the negative examination, or that decompression might furnish the decisive margin necessary to prevent fatal medullary compression. The choice is by no means an easy one, and there is much to be said for or against either method utilized. However, bearing in mind the relative simplicity of a trephine opening with a needle exploration of the brain, or moderate subtemporal decompression, I believe many patients should be given this small chance, unquestionably their only one for recovery. The families of patients represented here have universally been willing and even insistent that this small opportunity for benefit be tried and, even when the operation is unsuccessful, show more gratitude than is seen in other similar situations.

An interesting observation encountered in this series, and one which I have not seen discussed very fully in other papers, is the presence in four cases of a complete peripheral facial paralysis at the first examination. That this paralysis was not due to injury to the brain or seventh nerve nucleus was shown by the absence of any reflex changes or signs of a focal lesion elsewhere in the brain. In two of these cases there was a fracture of the parietal bone on the same side, but the fracture did not approach the course of the facial nerve at any point. The most probable explanation, I believe, is that at the time of injury there is a contusion or bruising of the nerve as it emerges through the stylomastoid foramen from the skull. This results in edema of the nerve with the resultant paralysis. While recovery from this type paralysis has been slow, all these cases have shown a tendency towards recovery. This observation should be of some medico-legal importance, perhaps.

The age incidence of patients in the group varied from two years up to seventy-two, the average being twenty-six. An interesting point to me was that twenty patients, or 25 per cent, were between sixteen

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and twenty-one years of age. This figure indicates the dangerous age in automobile driving, if this small series is any criterion. Fractures were present in twenty-one cases, or 27 per cent; three of them were depressed type, or approximately 4 per cent. Of the cases with fractured skulls three died, a mortality of approximately 15 per cent against a mortality of 9 per cent for the entire eighty patients. This would suggest that whether or not a skull is fractured is of considerable importance in prognostic evaluations even if of little practical benefit in treatment.

There were seven deaths in this series, a general mortality rate of 9 per cent. The causes of death were: cerebal edema, two cases; laceration of temporal lobe, one case; depressed fracture with osteomyletis, one case; fracture with hemorrhage unlocalized, two cases; status epilepticus or uncontrolled convulsions, one case.

Operation was performed in eight cases, or 10 per cent of the group: two cases of chronic subdural hemorrhage, left cerebral hemisphere; two cases of depressed fracture, one right frontal and one left frontal area; one case of traumatic arachnoid cyst right frontal lobe; three cases of simple subtemporal decompressions for edema. Two of these cases died, one a depressed fracture with progressive cerebral softening, ten days after operation; the other a case of acute cerebral edema with multiple small hemorrhages, the night after operation. If this operative group is a cross section of average head cases, we can assume that one case of head injury out of ten will ultimately require operative interference during the course of treatment.

As to residuals or late complications in head injury, by far the most common one in this group was that of a post-traumatic or post-concussion neurosis. This complication was definitely present in ten cases, or over 12 per cent of the recovered cases. Compensation evidently was a factor in some cases, but one that is probably exaggerated because, even after all compensation elements are removed, these cases continue to run from doctor to doctor or more frequently to the chiropractor or osteopath with their indefinite and intangible complaints, the main ones being, as a rule, headache and dizziness. It may well be that we are doing many of these cases an injustice by a diagnosis of neurosis. An encephalogram on one of these ten cases of neurosis showed very definite cortical atrophy. Other cases too might have a basis of organicity could we but find it. In any event, the present so-called post-concussive neurosis is one of the most serious problems encountered in head injuries.

Peripheral facial paralysis has been mentioned elsewhere in the paper as a complication in four cases. Hemiplegia was present as a late residual in only three cases—a very fortunate percentage. Other complications less frequently encountered were one case of mixed aphasia, and two of partial ptosis. In one case a rather unusual but not rare observation was encountered, that of hyperpyrexia following a severe concussion. This was in a young woman who for nearly two weeks maintained a temperature of 103 degrees to 104 degrees. There was no leucocytosis, spinal fluid was normal and patient was not toxic or exhausted as in an infectious process. She was clear mentally. After nearly two weeks, the high temperature disappeared and she made a complete recovery. The thermal centre is supposedly situated in the mid-brain and variations in the heat mechanism indicate injury within this area. A small hemorrhage in or near the thermal centre was the presumptive diagnosis in this case. One complication supposedly rather a frequent residual, that of post-traumatic epilepsy, has not been encountered in any case in this series.

CONCLUSIONS: Some observations in a small series of eighty cases of head injuries are given. No new methods of diagnosis, prognosis or treatment are offered. If any conclusions are possible from this cross section of average head cases, it is that standardization of treatment is difficult, if not impractical; that in head injuries, as in injuries elsewhere, treatment and prognosis must depend on a careful examination and continued observation of the patient as an individual. The only index of real value in treatment is whether your patient is improving under the methods in use. Ultimate results are still the criterion by which we measure our clinical success or failure. Head injuries are no exception to this rule.

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ACUTE CARBON MONOXIDE ASPHYXIA.

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It is estimated that there are approximately 50,000 asphyxial deaths in the United States annually. Probably about 50 per cent of these are due to carbon monoxide. The medical profession has left the treatment of these cases almost entirely in the hands of employees of gas and electric companies and first aid crews. This is a mistake which should be and very easily could be corrected. In asphyxia, as with any other seriously ill or injured patient, the treatment should be directed by a physician's skill and judgment. A lack of knowledge of the fundamental principles of resuscitation by the medical profession generally could be changed by giving the subject a little time and thought. Mistakes made in the past by physicians are many, such as:

1. Pronouncing a patient dead because no sign of life can be detected. Some of these cases can be revived by artificial respiration and inhalation treatment after from eight to twelve hours' effort.

2. Putting a non-breathing patient in an ambulance only to have him die on the way to the hospital. These patients should never be moved until normal respiration is established.

3. Use of hypodermic medication which only adds to the depression. The use of hypodermic and intravenous medication probably does no good and may do great harm.

4. Interfering with artificial respiration to examine patients. This is a useless and dangerous procedure.

If these mistakes are to be avoided in the future we must grasp the fundamental principles involved in acute asphyxiation.

OCURRENCE

Carbon monoxide is found wherever there is incomplete combustion. All engines using internal combustion give off carbon monoxide in the exhaust. There is a high percentage of carbon monoxide in artificial gas; that used by the local company contains 25 per cent to 35 per cent. Any smoldering fire in a furnace or stove gives off considerable carbon monoxide. This gas is colorless and almost odorless, so a person may be entirely unaware of its presence.

SYMPTOMS

The symptoms vary with the percentage of hemoglobin in combination with carbon monoxide. A summary of the symptoms given for different concentrations in the blood by Henderson and Haggard in "Noxious Gases" is:

10%	No appreciable effect except shortness of breath on vigorous muscular exertion.
20%	No appreciable effect in most cases except short wind even on moderate exertion; slight headache in some cases.
30%	Decided headache; irritable; easily fatigued; judgment disturbed.
40%–50%	Headache, confusion, collapse and fainting on exertion.
60%–70%	Unconsciousness; respiratory failure and death if exposure is long continued.
80%	Rapidly fatal.
Over 80%	Immediately fatal.

In the higher concentrations these symptoms develop so rapidly that one may lose consciousness before he realizes his danger.

PHYSIOLOGY

Carbon monoxide produces its symptoms by replacing the oxyhemoglobin of the blood with carbon monoxide hemoglobin. This is a loose chemical change which is easily reversed when exposure to carbon monoxide is discontinued and the oxygen supply increased. The affinity of hemoglobin is about three hundred times as great for carbon monoxide as for oxygen so prolonged exposure to very small quantities of the gas produces symptoms. The more carbon monoxide hemoglobin present the less oxygen the blood can carry, thereby producing an anoxemia of the tissues. During exposure to carbon monoxide there is a prolonged period of rapid forceful breathing. This hyperpnea produces an alkalosis by reducing the normal carbon dioxide of the body. This alkalosis causes the carbon monoxide hemoglobin to be held with greater tenacity by the blood. This is one of the main reasons carbon dioxide is so necessary in the treatment of these cases. Another benefit to be gained by the use of carbon dioxide is its action as a stimulant to the respiratory center. The rapidity of this reversal from

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carbon monoxide hemoglobin back to oxyhemoglobin varies with the percentage of oxygen.

TREATMENT

Of course, the first thing is to remove the patient from the contaminated atmosphere. In mild cases this is all that is necessary except bed rest and observation for twelve to twenty-four hours.

In the comatose patient who is not breathing, or whose breathing is weak and ineffectual, artificial respiration should be started at once. The Schafer prone pressure method is best for this purpose. Every one who is likely to see one of these cases should be thoroughly familiar with this method of artificial respiration. Any clothing interfering with circulation or respiration should be loosened. The depression of the circulation can be counteracted to some extent by having the head lower than the body. This also allows mucus to escape from the throat. However, no time should be lost in an effort to secure this position. As soon as possible an inhalator of standard design should be procured and inhalation of oxygen 93 per cent and carbon dioxide 7 per cent started. For very severe cases probably a higher percentage, carbon dioxide 10 per cent to 30 per cent, produces more rapid results, but for routine use the 93 per cent-7 per cent mixture has been found satisfactory. Artificial respiration and inhalation of this oxygen carbon dioxide mixture should be continued until normal respiration is reestablished or until rigor mortis sets in.

There are patients who have been revived after eight to twelve hours, or even longer, when all signs indicated they were dead when found. If, after an hour or two of treatment the patient still shows no sign of life, the carbon monoxide content of the blood should be determined. This test should be repeated in thirty minutes and if the carbon monoxide content of the blood is decreasing, under no circumstances should efforts at resuscitation be discontinued.

It must be remembered that these patients are in a state of shock and it is as essential that they be kept well covered and warm as in other forms of surgical shock.

After consciousness and normal respiration are reestablished, these patients should be moved to a hospital in an ambulance. Inhalation of the oxygen carbon dioxide mixture should be carried out for five to ten minutes each hour for six to twelve hours. After recovering consciousness, they should remain in the hospital for several days under observation. Any violent exercise is to be avoided for several days following exposure on account of the effect on the circulatory system.

Hypodermic or intravenous medication probably does no good in these cases. Respiratory stimulants such as Alpha-lobeline add to the circulatory depression and should not be used. Caffein sodium benzoate in small quantities probably is safer than any other drug but is of questionable benefit.

Time does not permit a detailed discussion of the controversy which has raged for several years over the use of methylene-blue in carbon monoxide asphyxia. The experimental and clinical data from the opposing groups report almost opposite effects. Brooks, Geiger and Bell, among others, recommend its use. They advise the intravenous injection of 50 cc. of a 1 per cent aqueous solution. Henderson, Haggard and Greenberg state that it is contraindicated because it acts as a synergist instead of an antidote for carbon monoxide poisoning. More experimental and clinical evidence is needed before the final word is said on this subject.

Blood transfusions have been used in the past but should be discontinued. They do no good, and the effect on an already profoundly depressed circulatory system may result fatally. If the treatment outlined above is carried out, almost all of these patients who are found before the heart has actually stopped, can be saved. It is well to remember that if respiration has ceased, there is a period of from five to ten minutes at most before the heart stops, so in these cases no time should be lost in starting treatment.

SEQUELAE

Following all severe carbon monoxide poisoning there are several days of malaise, nausea, headache and nervousness. In practically all cases the patient is then fully recovered and back to normal. Occasionally after severe prolonged exposure a psychosis develops which may be temporary or permanent. This complication is rare. In an analysis of one hundred and sixty-seven cases, severe enough for hospitalization, Shillito, Drinker and Shaughnessy found .56 per cent with a psychosis. Three of these recovered and one was permanent. These same authors found in an analysis of twenty-one thousand cases in New York that forty-three de-

veloped a psychosis. At the end of a two-year period, twenty-three of them had fully recovered; eleven had died and nine suffered permanent neurological symptoms.

This subject presents grave medico-legal aspects. It should be remembered that permanent ill-effects following acute carbon monoxide asphyxia are extremely rare and occur only after the most profound poisoning. If a person survives exposure to the gas, the most frequent cause of death then is the development of broncho-pneumonia. Repeated small exposure causes weakness, irritability, headache, nausea and fatigue. These effects are not permanent and clear up promptly upon discontinuing the exposure.

SUMMARY

1. The treatment of all cases of acute asphyxia should be carried out under the supervision of a competent physician.

2. Carbon monoxide gas occurs wherever there is incomplete combustion, the most frequent sources being the automobile and artificial gas.

3. The symptoms of poisoning in order of occurrence are: Weakness, headache, nervousness, fainting, respiratory failure and finally circulatory failure.

4. In cases of carbon monoxide asphyxia, carboxyhemoglobin replaces oxyhemoglobin, causing anoxemia of the tissues. This action can be reversed by high concentration of oxygen and carbon dioxide. The carbon dioxide acts also as a respiratory stimulant and corrects the alkalosis.

5. Artificial respiration with inhalation of 93 per cent oxygen and 7 per cent carbon dioxide is all the treatment necessary. Hypodermic and intravenous medications are not needed.

6. A psychosis occasionally follows profound poisoning. This is usually temporary, and it is extremely rare for a person to suffer permanent ill-effects from acute carbon monoxide asphyxia.

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Lewis Gale Hospital.

STUDIES ON OXYURIASIS. II. A PRELIMINARY NOTE ON TREATMENT WITH TETRACHLORETHYLENE.

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During recent years, tetrachlorethylene has been used extensively in the treatment of certain nematode infestations, particularly hookworm infestations, in man and domestic animals. Hall and Augustine[1] recommended testing it in pinworm infestations, and cite the case of a Nicaraguan soldier

who expelled a total of 5,544 pinworms following the administration of a single dose of 4 cc. of this drug.

In our cases, the patients were hospitalized for 48 hours. They were given a light supper of non-fatty foods the night before treatment; except in certain cases noted in Table 1, a high soap-suds enema was given at 9:00 P. M. on the day of admission; no breakfast was allowed on the morning of treatment; and the anthelmintic was administered at 7:00 A. M. For children up to 12 years of age, the tetrachlorethylene was administered at a dose rate of 0.1 cc. for each year of apparent (not chronological) age. For individuals over 12 years of age, the drug was administered at a dose rate commensurate with the age, weight and physical condition of the patient. In children 10 years of age and under, the anthelmintic was given in a suitable dose of magnesium citrate solution, and in those over 10 years of age, the drug was given in a suitable dose of a solution of magnesium sulphate. The younger children drank the magnesium citrate-tetrachlorethylene mixture readily and without objection, and the use of this mixture obviated the usual difficulties in administering chlorinated hydrocarbons to children. Food was not allowed until after the bowels had moved copiously, after which the patients were given the regular hospital fare.

All feces passed, following the enema and the treatment, were collected and washed through a series of screens of varying mesh sizes and all worms were collected and counted. The patients were discharged on the evening of the second day.

Of the large number of treatments for oxyuriasis in the medical literature, it would appear that almost all are recommended on clinical grounds, without critical evidence afforded by post-treatment examinations to determine their exact efficacy. Results of treatment in the present series were checked by perianal swabs with the cellophane swab described by Hall[2]. The value of this method of diagnosing pinworm infestation has been demonstrated beyond all doubt in some 3,000 examinations made by the staff of the Division of Zoology. The number of post-treatment swabs in the present series varied from 3 to 40, depending on the availability and accessibility of the patients. When only a few swabs could be made, they were taken on consecutive days, beginning with the 14th day after treatment, a period during which any pinworm larvae left by the treatment would probably have developed to maturity.

TABLE 1.—RESULTS OF TREATMENT OF CASES OF OXYURIASIS WITH TETRACHLORETHYLENE

Patient	Age	Dose of anthelmintic	Number of worms passed			Number of post-treatment swab examinations	Results of post-treatment swab examinations
			In enemas	In stools	Total		
	yrs.	cc.					
L.C.	7	0.7	9	103	112	36	Positive
A.C.	5	0.5	121	219	340	40	"
M.Q.	5	0.4	26	380	406	18	"
B.W.	8	0.6	92	763	855	10	"
J.C.	6	0.5	638	155	793	7	"
G.C.	9	0.9	11	63	74	36	Negative
D.C.	4	0.4	116	511	627	40	"
J.B.	15	1.5	No enema	1	1	5	"
J.H.	14	2.5	" "	3	3	4	"
J.H.H.	10	1.0	0	1	1	3	"
E.C.	7	0.5	539	122	661	7	"
Averages 8.2		0.86	172.4	211	352	19	Total pos. 5; neg. 6

Table 1 presents the results of the treatment of eleven patients with tetrachlorethylene.* While the

*We desire to express our appreciation to Dr. Wm. A. Warfield, formerly Superintendent, Freedmen's Hospital, and to Dr. Manly B. Root, Physician to the National Training School for Boys, Washington, D. C., for their cooperation in the treatment of a number of these cases.

drug was not entirely effective for the removal of all worms from all patients in this series, six of the eleven individuals were definitely negative following treatment. In future papers we shall discuss various difficulties in the treatment of oxyuriasis, and shall present data on a much larger series of patients treated with tetrachlorethylene.

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EFFECTS OF INTRAVENOUS ACETYL-BETA-METHYLCHOLINE ON PAROXYSMAL AURICULAR FLUTTER.*

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In the past several years, acetyl-beta-methylcholine has been used clinically in the treatment of paroxysmal tachycardias (Starr,[1] Carmichael and Fraser,[2] Kovacs[3]). The value of this drug in these conditions is based upon its parasympathetic action, which is shown by the inhibitory effect on the heart, the lowering of blood pressure and the stimulation of intestinal peristalsis. All of these effects can be abolished by atropine. Although definite conclusions have not been reached, experimental physiological studies on animals by Cattell and Wolff[4] strongly suggest that the exact site of action of the choline derivatives is on the peripheral tissues innervated by parasympathetic nerves rather than on the parasympathetic ganglia or the post-ganglionic nerves. It may be assumed that certain other paroxysmal arrhythmias having their origin in the auricular structures would also respond favorably to acetyl-beta-methylcholine.

All observers agree that caution should be used in the administration of acetyl-beta-methylcholine and that its antagonist, atropine, should be kept available in case the individual has any untoward reaction. This drug has been given orally and subcutaneously, but is considered dangerous when injected directly into the blood stream because of excessive undesirable side effects and possible shock. In the following case study, the individual was given ten milligrams of acetyl-beta-methylcholine intravenously.

CASE SUMMARY

The patient was a white male, age 39, who had been in perfect health until May 15, 1936, when after a heavy meal he developed discomfort in his abdomen and chest. He went to bed, had a restless night, and was awakened early the next morning with palpitation of his heart. Associated with the rapid heart action was a sensation of nausea and vertigo. The patient did not respond to the usual medications and was referred to the hospital about thirty-six hours after the onset of the attack.

PHYSICAL EXAMINATION

A tall, thin, anxious individual, but not in pain. He was lying flat in bed and there was no distention of the neck veins. The chest and lungs were normal. The heart rate was rapid but regular at 150 contractions a minute. Heart sounds were indistinct, no murmurs were heard, and the blood pressure was 110-70. The liver was not palpable and there was no peripheral edema.

TREATMENT IN HOSPITAL

Pressure on the carotid sinus had no clinical effect on the arrhythmia. Electrocardiographic tracings revealed a paroxysmal auricular flutter and no changes were evident in the electrocardiograms after carotid sinus pressure. Continuous electrocardiographic tracings were obtained, before and after the intravenous injection of acetyl-beta-methylcholine, except during the stage of cardiac standstill, as the patient was constantly moving his extremities during this period. Figure I demonstrates the changes that occurred. Immediately after injection of the drug, the patient began coughing. His entire body was covered with profuse perspiration and he began expectorating mucus and saliva. There were spasmodic contractions of his right arm and leg, a

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twitching of the right side of his face and a horizontal nystagmus to the right. The heart stopped beating and the patient became unconscious. His respirations were increased but shallow. Atropine sulphate 1/100 grain was injected subcutaneously and the patient regained consciousness, expressing a desire to defecate. The heart rate was 88 and there was no evidence of an arrhythmia; within a few hours the patient had recovered, his only complaint being a generalized weakness. He was discharged the following day.

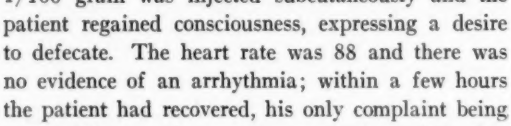

Fig. 1.

COMMENT

The dangers of intravenous injections of acetyl-beta-methylcholine have been emphasized in the past but are again forcibly demonstrated in this patient. The observer was greatly relieved by the immediate regaining of consciousness and the return to a normal state in the patient after the atropine injection. The cerebral manifestations were particularly disconcerting. They were probably caused by the cerebral anemia incident to sudden vasodilatation and the transient cardiac arrest.

The electrocardiographic changes observed after ten milligrams of the drug intravenously could possibly have been produced with a much smaller dosage, especially if the patient happened to be sensitive to the choline fraction. It is also conceivable that a smaller dose might cause a complete heart block or ventricular tachycardia followed by ventricular fibrillation and death.

In retrospect, although paroxysmal arrhythmias are not usually considered pathognomonic of organic heart disease, those individuals having the condition are certainly not normal and the use of acetyl-beta-methylcholine routinely, either subcutaneously or intravenously, in these cases would seem dangerous.

CONCLUSIONS

1. Although dangerous side reactions were produced, a case of paroxysmal auricular flutter was dramatically terminated by the injection of acetyl-beta-methylcholine intravenously.

2. The proper safe dose of acetyl-beta-methylcholine is still not definitely established and even with vast experience in the use of this drug, it should be interdicted except when all other procedures have been unsuccessful.

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THE RELATION OF THE HOSPITAL TO MEDICAL EDUCATION AND MEDICAL PRACTICE—AS DISCUSSED IN "AMERICAN MEDICINE."*

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A broad inference from the American Foundation's "American Medicine" is that solving the hospital problem will in large part solve also the whole problem of "organizing medical care."

All roads to "solution" lead past the hospital. It is hospital costs pre-eminently which low incomes cannot meet. It is the absence of hospital facilities

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in small towns and rural areas that makes it impossible to "distribute" medical graduates to the places that need them, with the result that they flock in competitive groups to cities already over-supplied. It is the hospital that determines the practitioner's opportunity for clinical observation, and which therefore also determines his ability to achieve and maintain competence. It is the hospital, i.e. the workshop and not the classroom, in which, in the last analysis, not only must training for the practice of specialties be concentrated, but in which also under-graduate training must, perhaps in increasing degree, be accomplished. It is the hospital in which a group of "specialists" is naturally gathered and which therefore—whatever the future of other forms of "group practice"—is bound to be a permanently important center of diagnostic and consultation service. It is largely through the hospital that the government must accomplish its responsibility to the indigent sick and the low income group, the "medically indigent."

Obviously the hospital's domination of the scene needs no demonstration, or so at least these 2,200 leaders in medical science, writing in "American Medicine," believe. In sharp contrast, however, to the stability and permanence of the hospital's scientific and professional function is its present economic status. Of the voluntary hospitals of the country generally, it may be said that their present support is chaotic and insecure, derived from diminished endowments, supplemented by charity contributions extracted through drives, appeals, and "other forms of benevolent extortion." How the hospitals of the country are to be supported sounds like an economic question to be answered separately from the question how to achieve a better quality of medical practice, or the question how to distribute medical care to more people at lower rates. But, as a number of writers in "American Medicine" point out, the latter two questions will not be answered effectively until the first is answered also. There is an indubitable inter-relation.

"American Medicine" recognizes this inter-relation. The chapter on the hospital covers comprehensively the relation of the hospital to the quality of medical care, and also its relation to the social and economic problems of distributing and paying for medical care.

THE HOSPITAL AND THE PUBLIC

More than a few correspondents point out a certain change, subtle yet measurable, in the public attitude toward the hospital. People more and more tend, it is maintained, to seek medical care from the hospital, sensing the stability that goes with institutional organization, based upon scientific principles. And this change in public feeling, some contributors assert, is logical enough, for the hospitals on the whole have kept better pace—if comparisons must be made—with modern scientific development than have the general run of individual practitioners. The hospitals, it is maintained, have more promptly recognized the need of change, more swiftly understood the new conception of preventive medicine, and more promptly added facilities for taking it into account, whereas private practitioners have all too generally closed their eyes to changes in the scientific world and changes in social organization, resisting preventive medicine instead of going out to meet it.

If we are honest, write certain contributors, we have to admit that the individual practitioner cannot successfully compete with a competent institution, with reference to needed facilities both for diagnosis and for treatment. For one thing, the individual doctor can seldom afford all needed modern equipment (and would it be reasonable for every doctor to install it, aside from the question of expense?). Nor is that all. It must also be admitted that many practitioners are not trained satisfactorily in the technique of carrying out all of the investigations even if their resources extended to purchase of the equipment. These facts point to the imperative need of increasing cooperation between the private practitioner and the hospital—in the public interest. These facts explain why the two thousand odd standardized hospitals of the country combining under one roof the necessary laboratory facilities, the technicians, the groups of specialists and facilities for consultation, are more and more becoming the agents of a better type of medical care, making facilities freely available to the community practitioners, offering the patient something nearer that continuous and coordinated medical care which is ideally the objective we all seek.

THE HOSPITAL AND THE DOCTOR

The view that every doctor should have a hospital connection is not considered revolutionary in this

correspondence. An assistant professor in the Harvard Medical School presents a view that is implicit or explicit in many of these letters:

> "There must be some method evolved which will establish a hospital contact for every practicing physician. The hospital is the place where there is the most free exchange of ideas between the physicians and the frankest discussion of problems."

A professor of obstetrics in an approved medical school stresses the necessity of a hospital connection as a primary condition of efficiency:

> "The medical man after training in university and residentship in a hospital should not be turned loose upon an unsuspecting public to practice antiquated medicine, but should immediately be aligned with some hospital group as a junior with all of the most modern facilities at his command, and continue his work and training in such surroundings."

From a professor of clinical medicine in an approved medical school:

> "So strongly do I feel about the necessity of the association of the practicing physician with a hospital service, that I believe that, even after years of such association, severance of it results in the great majority of instances in a certain though gradual retrogression of clinical ability."

One of the younger group, a recent graduate of Cornell University Medical College, in discussing the doctor's need of the hospital, observes:

> "A man treating a given disease only once or twice a year cannot be expected to have as low a mortality as one who treats the same condition two or three times weekly."

There is pretty general agreement that one of the sharpest present problems is the development of some method for controlling the performance of hospitals and of insuring minimum standards. The physical plant and equipment of hospitals, it is pointed out, have received more attention, legislative and otherwise, than the standards of medicine and surgical practice within the plant. How standards are to be maintained in any given hospital is the subject of a great deal of speculative suggestion. Some, as usual, would legislate. Many would license hospitals for one year only, making renewal dependent upon the maintenance of certain standards vouched for by professional judgment of high rank. Some would leave control of standards of hospital practice to professional groups, as to the American College of Surgeons. It is admitted that the College has not as yet worked out satisfactorily the problem of standards of surgical practice in hospitals, but hope is entertained that it eventually will succeed in doing so; and recognition is duly accorded the College's influence in the fact that in 1935 there were 2,523 approved hospitals as against 89 in 1918. Some believe that neither legislation nor the professional organizations can handle the situation, but that each hospital must individually define its own standards—and exact compliance with them. It is admitted that at present the methods of choosing staff members, of making the hospital privileges available, of controlling the functioning of the courtesy staff, etc., leave much to be desired, but a convinced group of workers nevertheless believes that the individual hospital, by a closer and more competent organization of its own staff and by systematic review of its own work, may easily set and maintain high standards for every bit of medical and surgical care offered within the given institution.

In this connection a great deal is said about undeveloped possibilities in staff organization. What is envisaged is a flexible yet very firm type of staff organization, motivated by scientific work and not by organization politics. The heart of such staff organization, certain competent writers affirm, lies in the staff conference—formal conference, "routine" in requirement, but never routine in quality. Several correspondents cite in this connection those recommendations of the American College of Surgeons, providing that the staff meet at least once a month and that it consistently review and analyze the clinical experience in various departments of the hospital. Reference is also made to the growing custom of having a joint conference committee, consisting of representatives from each group, who convene at regular intervals. Three kinds of conference are contemplated; the general staff conference, the departmental conference, the clinico-pathological conference, for a study of the pathology as seen in the autopsy or revealed through operation.

Not a very high grade is accorded to informal consultations held orally.

What hospitals lack rather generally, according to the testimony before us, is *integration*, a continuity of program, that can be secured only through a unifying intelligence at the head of the hospital, in a medically strategic position as to the various services.

OPEN AND CLOSED STAFF

The arguments for the closed staff and for the open staff are, of course, fully developed. There is a great deal of support for the position that the facilities of a hospital should be accessible to every reputable physician in the community; and there is also a great deal of support for the closed staff on the theory that more efficient staff organization can be developed in a "closed" hospital. There are directly conflicting views as to whether there is more incompetent surgery in the open or in the closed hospital. The whole "open or closed" controversy is characterized by some confused thinking; those who do not care to take sides take refuge in the generalization that, granted proper management, either system can be made to work effectively. The chief surgeon in a Massachusetts hospital, FACS, thinks that both the tightly closed staff and the wide open staff should disappear in favor of the staff honestly built on ability.

THE PHILOSOPHY OF PAYING THE STAFF

The animating principle in this discussion seems to be less the "rights" of the worker, than the integrity of the work. In other words the idea is less to get "justice" for the doctor than to set up the kind of organization that will enable the doctor to do his best work and thus secure for the patient the best care.

Typical of the views set forth in this connection is the following from a Connecticut surgeon, certified by the American Board of Obstetrics and Gynecology:

> "I am convinced that voluntary service, in hospitals, is more expensive than it appears, for it leads to the work's being done by junior assistants and internes. This invariably not only means less skilful work, with longer hospitalization, but it also allows the neophyte to gain his experience at the expense of the taxpayer."

A professor of pediatrics in Philadelphia points out, along the same line:

> "In most hospitals and dispensaries, where physicians are expected to work without pay, hospital work becomes of secondary importance to their private practice and consequently suffers."

One way, it is suggested, in which lack of payment influences unfavorably the quality of medical work is that the free work absorbs that margin of time (if any) that a doctor might devote to keeping himself in touch with a rapidly developing science. A member of the staff of a county hospital in the west, for instance, writes:

> "The medical voluntary staff serves without pay, yet clicks the time clock the same as any employee. The General Hospital here charges each patient a portion or all of his physical cost according to the finance rating, determined by social service, but the attending physicians give their time.
>
> "Federal adjustment of these conditions would be beneficial in that it would make it possible for the majority of physicians to continue their subscriptions to current medical journals and books, and take the occasional postgraduate course which is so essential to medical scientific progress."

One writer, a surgeon in New York City, consultant in several hospitals, recommends

> "termination of the exploitation of the attending physicians to increase hospital revenues. . . . The administrators of hospitals are trying to harness the medical profession to overcome their deficits."

There is, of course, intensive discussion *pro* and *con* of the thesis that doctors are adequately paid in experience and prestige. The argument that doctors receive in experience full value for the work they contribute is, some writers believe, true, if at all, for only the first few years. They make the point that the "experience" argument is not more applicable to medical men than it should be, for instance, to salesmen. Experience must be acquired, but most people expect to earn their living while acquiring it. There is something basically wrong, it is observed, in the present assumption that those able to pay for experience are also and always the persons qualified to give the best service or destined to make the best doctors.

Both the older men and the younger particularly stress payment for internes.

THE HOSPITAL AS GUARDIAN OF THE STANDARD OF MEDICAL PRACTICE

The president of the medical society in a New England state testifies "I believe that the trend in my state is toward group practice surrounding the community hospital." In the article on group practice, in last month's issue, there was mention of the point, clearly stressed in the report, that the real group practice of the future may be not the privately incorporated group clinic common at the present time, but the hospital "group" or staff. As pointed out in a preceding paragraph in this article, that

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staff will be a more cohesive, more self-conscious and self-reviewing body, with a steadily growing emphasis upon its cooperative competence. It does not take a great deal of imagination to envisage such a group as a real consultation center, cooperating with the medical practice of the whole community and maintaining the standard of community practice.

A natural development also is the community hospital as a center of preventive medicine, involving a definitely worked out relation between the hospital and the public health service, state and local.

DISCRETION URGED AS TO THE COMMUNITY HOSPITAL PROPAGANDA

There is a good deal of resistance to the idea that sufficient booming of the community hospital movement would solve all present medical and economic problems. A good many scientific men who would certainly like to see a greater number of competent hospitals on the face of the land, nevertheless distrust propaganda for the community hospital *as a panacea.*

In the first place they fear a building program that ignores the difficulty—some think the present impossibility—of staffing the community hospitals with not merely passable, but with first grade men.

In the second place, they feel that some of the money and interest that are going into the community hospital "movement" might more profitably be devoted to other objectives—as for instance preventive instruction, diagnostic facilities, "study of the individual on his feet," as one contributor puts it, rather than study of him when he is down—on a hospital bed.

ECONOMIC ASPECTS OF THE HOSPITAL

There is somewhat extensive discussion of hospital costs in "American Medicine," costs of original plant, maintenance, management, cost to patients, possible economies. In connection with the latter there is a frank discussion of hospital direction and management, of the real functions of hospital trustees, in administering what amounts to a public interest, of the relation of lay and medical interests, of the real nature of the job of hospital superintendence—(involving qualification other than that of a "broken-down" minister, for instance, however deserving)—and many other factors of direct pertinence to the question of how hospitals are, and how they should be, run. Space does not permit dealing with these points, though they are relevant to our discussion. We reserve for the conclusion of this discussion simply the critical question of how the hospitals of the future are to be financed.

That hospitals are definitely in the red, that the problem is urgent, is generally admitted in this correspondence. The problem of the hospital's financial future comes to a rather sharp issue between hospital insurance on the one hand and direct use of tax funds on the other. Hospital insurance of late months has had a great "boom." It appeals to *hospital trustees and managements* because it creates funds where none existed before. New sources of maintenance the hospitals must have, and here is actual "new money." It appeals to *white collar workers* whose salary does not justify a major operation and three weeks in a hospital—a need that descends upon their friends right and left and that may, next year, reach themselves. Why not insure at three cents a day? It appeals to *doctors* because they feel that if the hospital is paid through insurance funds, there may be at least a hope that the patient may manage to pay the doctor privately. When the patient has both the hospital and the doctor to pay, the hospital claim is always, as the doctor well knows, preferred (if indeed it is not exacted in advance).

This sounds like a powerful trio of logic for the case of hospital insurance. Some contributors to "American Medicine" stress these three powerful arguments. Other contributors, by setting forth the whole subject of hospital insurance more broadly and by probing into both the philosophy and the practical value of it more profoundly, stress their own belief that hospital insurance, in spite of its present appeal, may not be the real answer. Some writers are apprehensive that hospital insurance, by *appearing* to meet the problem, may postpone what they believe to be the really permanent remedy, i.e. the allocation of tax funds for hospitals in order to make it possible for them to supply diagnostic and institutional care at low rates. The doctrine of tax support for hospitals (as against hospital insurance) does not mean, of course, that all hospitals would be entirely tax supported; it means that public funds would be allocated in relation to the amount of service rendered to the indigent and the medically indigent. As to just how the tax funds would be raised and from which unit of government they would come, there are no dogmatic conclusions, but

the following preferences, not to say principles, may be said to emerge:

A feeling for local financing (and local administration!) to the utmost practicable degree.

State aid, as a fairly obvious and fairly general necessity.

Federal aid as a necessity for certain types of community—sparsely populated, or without resources.

Some of these who believe in a program of federal aid to the states for the support of hospitals are not so much interested in getting *federal money* as they are in getting *national standards*. And they believe that the principle of federal grants-in-aid to states that apropriate adequate funds offers the best hope of national definition of standards of medical and surgical practice inside the hospital.

Public Health Statistics

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State Health Commissioner of Virginia.

The report of the State Health Department's bureau of communicable diseases, as compiled for the month of July, shows the following cases compared with the same month in 1936:

	1937	*1936*
Typhoid and Paratyphoid	107	61
Diphtheria	33	20
Scarlet Fever	31	45
Measles	275	214
Meningitis	16	15
Poliomyelitis	12	4
Rocky Mountain Spotted Fever	10	15
Typhus Fever	0	1
Undulant Fever	4	2
Tularaemia	3	3
Smallpox	0	0

REPORTING OF COMMUNICABLE DISEASES

The collection, recording and analysis of data concerning the incidence of communicable diseases constitute one of the major activities of the Department. The reports of cases of communicable diseases received from the practicing physicians form the basis of this important function. The significance of figures thus compiled depends in considerable measure upon the cooperation of every doctor in the State. The value of an efficient system of reporting communicable diseases is beyond question if Virginia is to continue her favorable position in regard to the public health.

It is believed that the failure of a few physicians to report their cases of communicable diseases is due in most instances to a lack of understanding of the State requirements and the method of notification, rather than an unwillingness to cooperate.

Every physician practicing in Virginia is required by law (Section 1515, Code of Virginia) to report cases of communicable diseases to the Virginia State Department of Health. Such reports are to be made in writing on blanks furnished for that purpose by the State Board of Health.

Every effort is made to operate a system of reporting which is both simple and efficient. To prevent undue inconvenience and to minimize the work of the physicians attendant to their reporting of cases, blank report cards are mailed them each week to be filled out and returned in a self-addressed franked envelope. These cards should be returned even though no cases are to be reported. Only in this way can it be ascertained that the physician has received the report form.

Any physician (except those engaged in specialties not concerned with communicable diseases) who does not receive a weekly report form should notify the Department in order that his name may be added to the roster for the State.

POLIOMYELITIS LEADS IN CRIPPLING CONDITIONS

During the period July 1, 1936 to June 30, 1937, twenty-seven hundred orthopedic cases were investigated by the Department's crippled children's bureau.

Infantile paralysis continued to head the list of crippling conditions, with 480 cases or 17.7 per cent of the total. Next in importance were osteomyelitis, spastic paralysis, tuberculosis of the bones and joints, injuries in the home or on the highway, rickets and club feet.

It is interesting to note that four out of the first six major causes of crippling in Virginia are partially or wholly preventable and that many of the remainder can be greatly benefited or cured by early adequate treatment.

XUM

ROANOKE

Convention City

for

Sixty-eighth Annual Meeting

of

Medical Society of Virginia

October 12, 13 and 14, 1937

Roanoke, situated in the lower portion of the Shenandoah Valley, and the gateway to the great Southwest Virginia, is the third largest city in Virginia. It has reached its present status in a very short time, which accounts for its being called the "Magic City."

In January, 1884, the town of Big Lick was incorporated under the name of Roanoke. At that time the population was about five thousand. In 1900 the population was 21,495; in 1930 it was 69,000; and in 1937 it was estimated at 76,000. The metropolitan population (1930 Census) is 103,120. In 1936 the bank clearings were $323,403,782.53.

It has the city manager form of government consisting of five Councilmen and the City Manager. It has three magnificent hotels attaining an aggregate of 750 rooms. There are 161 industries and 11 utility companies which employ 17,711 people, with a payroll of $23,893,840.00. There are 123 wholesale houses and 920 retail units, with sales amounting to $55,000,000 (1935 Federal Census). WDBJ radio station, located in Roanoke, uses 1,000 watts at night and 5,000 watts during the day, with Columbia Broadcasting System Hook-up. The main office and shops of the Norfolk and Western Railway Company are situated here and the Virginian Railway has its main line passing through Roanoke.

In close proximity to Roanoke are to be found Hollins College, Roanoke College, Virginia Polytechnic Institute, Virginia Military Institute, Wash-

ROANOKE COUNTRY CLUB

ington and Lee University, and the University of Virginia.

Roanoke has six hospitals, five for white people and one for colored, with 396 beds available. The

HOTEL PATRICK HENRY

United States Veterans' Facility, with a capacity of 350 beds, is located within three miles of Roanoke. Catawba Sanitorium is within twelve miles.

HOTEL ROANOKE

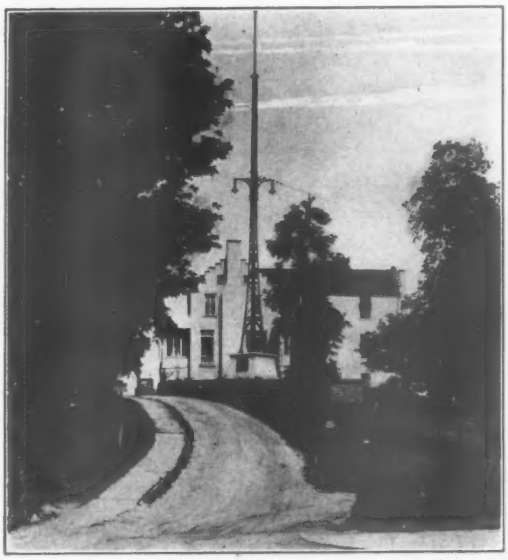
Within the last five years the Medical Arts Building has been constructed and it is one of the handsomest office buildings in the city.

HOTEL PONCE DE LEON

Many lovely tours may be taken from Roanoke on excellent highways. Doctors who come by automobile may visit the famous Natural Bridge of

NEW NORFOLK AND WESTERN RAILWAY COMPANY GENERAL OFFICE BUILDING

Virginia, the Peaks of Otter, go through Goshen Pass to Lexington (site of the Virginia Military Institute and Washington and Lee University), the Virginia Polytechnic Institute at Blacksburg, Dixie Caverns west of Salem, Mountain Lake, and the



PUBLIC LIBRARY

MEDICAL ARTS BUILDING

beautiful country to the south and southwest which includes some of the loveliest and most interesting spots in Virginia.

The Roanoke Medical Profession is looking forward with a great deal of pleasure to entertaining the Medical Society of Virginia and can assure all those who can attend that everything in their power will be done to make things comfortable.

The Roanoke Academy of Medicine has secured Dr. Frank H. Lahey, of the Lahey Clinic, Boston, who will speak on thyroids, and Dr. W. McK. Craig, of the Mayo Clinic, who will speak on the surgical treatment of hypertension. These talks will be given at 2:30 on Tuesday afternoon, October 12th.

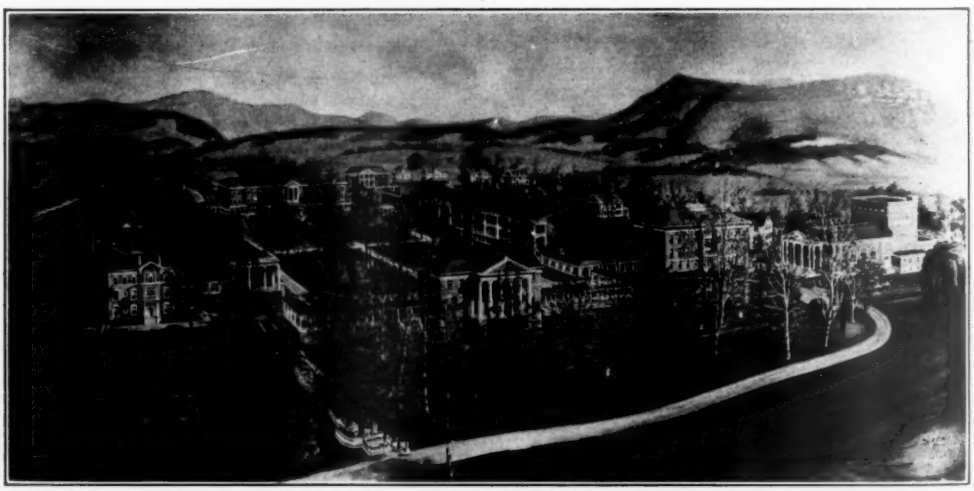
ON TO ROANOKE!
(By G.M.M.)

'Mid vales and hills,
'Mid rocks and rills,
With mountain sentinels around,
Like sturdy oak
Stands Roanoke,
No fairer landscape can be found.

Come dwell awhile
Where sunbeams smile,
And birds are singing in the dell,
Come hear us "blow"
Of what we know,
And see the city where we dwell.

With open arms,
With many charms,
With vales with rivers running through,
She sends a call
To one and all,
And pledges all she has to you.

(VA. MED. MONTHLY, September, 1931.)



HOLLINS COLLEGE

PROGRAM

(PRELIMINARY)

MEDICAL SOCIETY OF VIRGINIA

Sixty-eighth Annual Session

Roanoke

OCTOBER 12, 13 and 14, 1937

HOTEL PATRICK HENRY—*Headquarters*

SCIENTIFIC PROGRAM

CLINICS

Tuesday, October 12

2:30 P. M.

Thyroids—FRANK H. LAHEY, M. D., Boston.

Surgical Treatment of Hypertension—W. McK. CRAIG, M. D., Rochester, Minn.

GENERAL SESSION

Tuesday, October 12

8:00 P. M.

Call to Order—W. L. POWELL, M. D., General Chairman, Committee on Arrangements.

Invocation—REV. H. SPENCER EDMUNDS, D. D.

Address of Welcome—HON. SIDNEY F. SMALL, Mayor of Roanoke.

Announcements.

Address of President—J. MORRISON HUTCHESON, M. D., Richmond.

Memorial Hour.

Address—Pneumonia as a Public Health Problem—RUSSELL L. CECIL, M. D., *(Invited Guest)* New York City.

Medical and Surgical Sections

Wednesday, October 13

9:00 A. M.

Medical Section—Patrick Henry Hotel

Coronary Occlusion in a Twenty-Seven-Year-Old Man.

ERNEST G. SCOTT, M. D., Lynchburg.

A case of coronary occlusion in a twenty-seven-year-old man, apparently well beforehand. The rarity of this condition in the young is discussed with factors influencing the incidence.

Discussion opened by B. P. Seward, M. D., Roanoke.

Acute Coronary Thrombosis.

HARRY GOLSTON, M. D., Roanoke.

A clinical evaluation of the signs, symptoms, diagnosis, prognosis, electrocardiographic findings and the treatment of this condition with the report of three cases.

Discussion opened by Ernest G. Scott, M. D., Lynchburg.

Mental Hygiene Clinics in the Counties. (An analysis of 120 cases examined in 13 counties during 1936-7).

JAMES N. WILLIAMS, M. D., Richmond.

A careful analysis of all factors such as heredity, environment, intelligence and personality is presented which shows the cause of difficulty in each case. The results are encouraging and warrant continuation of these clinics.

Discussion opened by David C. Wilson, M. D., Charlottesville.

The Care of Infants with Allergic Eczema.

W. AMBROSE MCGEE, M. D., Richmond.

Proper treatment of eczema necessitates exhaustive history, numerous scratch and intradermal tests and often indirect tests; removal of offending foods and hyposensitization for inhalants.

Discussion opened by J. M. Bishop, M. D., Roanoke.

Skin Manifestations in Tularemia.

JOSEPH M. HITCH, M. D., Charlottesville.

DUDLEY C. SMITH, M. D., Charlottesville.

The primary lesion with its gross and microscopic pathological changes is discussed as are also the subcutaneous nodules of tularemic lymphangitis. Various types of generalized eruptions seen in this disease are given.

Discussion opened by R. D. Kimbrough, M. D., Norfolk.

Fever, Malaria, and Short Wave in Treatment of Neurosyphilis.

JAMES ASA SHIELD, M. D., Richmond.

A discussion of the treatment of choice, contraindications, and results based on observations made on fifty-three cases varying in age from nine to fifty-seven years.

Discussion opened by E. T. Terrell, M. D., Williamsburg.

XUM

Determination of the Urinary Excretion of Ascorbic Acid (Vitamine C).

T. D. WALKER, M. D., Newport News.

The body requirements of the various vitamines are being studied and, if determined with any degree of accuracy, will be of practical service. Blood and urinary studies are being made on vitamine C.

Discussion opened by F. D. Wilson, M. D., Norfolk.

Wednesday, October 13
9:00 A. M.
Surgical Section—Patrick Henry Hotel

Roentgen Ray Diagnosis and Treatment of Osteitis Fibrosa Cystica. *(Lantern Slides.)*

WM. P. GILMER, M. D., Clifton Forge.

This occurs most frequently between ages of ten and fifteen and majority are in shafts of femur, humerus, or tibia. Pathology, diagnosis, and report of a case treated by roentgen therapy, with results, are given.

Discussion opened by J. T. McKinney, M. D., Roanoke.

Advances in the Treatment of Pelvic Inflammation.

CHARLES R. ROBINS, M. D., Richmond.

Pelvic inflammation has always been one of the most frequent causes of pelvic pathology in women. The advances from the radical operations to the modern treatment are traced.

Discussion opened by C. J. Andrews, M. D., Norfolk.

The Treatment of Carcinoma of the Cervix.

RANDOLPH H. HOGE, M. D., Richmond.

The relative value of surgical and irradiative methods are discussed. The methods of irradiation are described, and the method recently adopted at the Medical College of Virginia is given in some detail.

Discussion opened by John M. Nokes, M. D., Charlottesville.

The Early Diagnosis of Gastric Cancer.

ALLEN BARKER, M. D., Petersburg.

WRIGHT CLARKSON, M. D., Petersburg.

The medical profession is urged to suspect gastric cancer in any patient over thirty-five years of age with any gastric compliant, and to immediately demand a thorough examination, including roentgen study. The fallacy of believing that improvement under medical treatment and the presence of free hydrochloric acid in the stomach contents excludes early cancer is emphasized.

Discussion opened by J. Shelton Horsley, M. D., Richmond.

Improved Methods of Treatment for Appendicitis.

J. SHELTON HORSLEY, M. D., Richmond.

JOHN S. HORSLEY, JR., M. D., Richmond.

GUY W. HORSLEY, M. D., Richmond.

Seven hundred and twenty-seven cases of appendicitis operated upon from January, 1931, to April, 1937, with five deaths. Principles followed are immediate operation, McBurney incision, always removing the appendix, suction instead of sponging, physiologic rest by intravenous dextrose in Ringer's solution instead of hypoclysis, and simple treatment of the stump of the appendix.

Discussion opened by E. P. Lehman, M. D., Charlottesville.

The Limitations of Phrenic Surgery in Pulmonary Collapse Therapy.

FRANK S. JOHNS, M. D., Richmond.

Phrenic surgery limited aid in collapse therapy. Paralyzed diaphragm may benefit selective lower cavities; ineffectual for apical, fibrous lesions. Easy procedure responsible for frequent abuse.

Discussion opened by C. Lydon Harrell, M. D., Norfolk, and Dean B. Cole, M. D., Richmond.

Traumatic Surgery.

M. H. TODD, M. D., Norfolk.

Traumatic surgery to restore injured parts as perfectly as possible, minimizing time and extent of disability. Guiding principles and some necessary details in treatment of injuries of viscera and extremities.

Discussion opened by Joseph D. Collins, M. D., Portsmouth.

GENERAL SESSION
Wednesday, 2:00 P. M.
Hotel Patrick Henry

Address—The Part of the Practicing Physician in Syphilis Control—THOMAS PARRAN, M. D., Surgeon General, U. S. Public Health Service, *(Invited Guest)* Washington, D. C.

Special Report from Pneumonia Commission.

Childhood Tuberculosis. A report of 600 Cases Treated with a Survey of Results One to Eleven Years After Discharge.

FRANK B. STAFFORD, M. D., Charlottesville.

V. L. KELLY, M. D., Charlottesville.

Results of 600 cases treated at Blue Ridge Sanatorium, including survey on same group of children from one to eleven years after discharge. The relationship of close contact to infection in children is illustrated and the importance of separating "open" cases in the home emphasized. Suggestions are made on the probable X-ray classification of latent forms of childhood tuberculosis.

Discussion opened by L. T. Royster, M. D., Charlottesville.

Care of the Aged.

BLANTON P. SEWARD, M. D., Roanoke.

A brief historical review of the development of geriatrics is given, followed by a consideration of old age as a natural process with suggestions concerning the personal care of the patient. No discussion of diseases occurring in old age is attempted.

Discussion opened by J. W. Preston, M. D., Roanoke.

ROUND TABLE DISCUSSIONS
Wednesday, 3:30-5:00 P. M.

Treatment of Heart Disease—Leaders: J. EDWIN WOOD, JR., M. D., and PAUL D. CAMP, M. D.

Obstetrical Problems—Leaders: M. PIERCE RUCKER, M. D., and A. M. GROSECLOSE, M. D.

Minor Surgery—Leaders: HUGH H. TROUT, M. D., and C. B. BOWYER, M. D.

Diarrhea—Leaders: CHARLES E. CONRAD, M. D., and J. B. MCKEE, M. D.

Mental Hygiene—Sponsored by Mental Hygiene Society of Virginia.

Treatment of Trochanteric Fractures of the Femur by Means of Internal and External Fixation—Sponsored by the Virginia Orthopedic Society with H. H. WESTCOTT, M. D., and J. T. TUCKER, M. D., as Leaders.

X-Ray Treatment of Infection—Sponsored by Roentgen Ray Club of Virginia with VINCENT W. ARCHER, M. D., and FRED M. HODGES, M. D., as Leaders.

The Modern Treatment of Non-Venereal Urinary Tract Infections—Sponsored by Virginia Urological Society, with JOSEPH F. GEISINGER, M. D., and LINWOOD D. KEYSER, M. D.

Wednesday, 6:30 P. M.

Subscription Dinner and Floor Show

GENERAL SESSION

Thursday, October 14

9:00 A. M.

Insulin Shock Treatment of Dementia Praecox.

JAMES KING, M. D., Radford.

FRANK A. STRICKLER, M. D., Radford.

General discussion of insulin shock treatment of dementia praecox with a general survey of results in Europe and America during past two years. Case reports with statement regarding virtue of the treatment.

Discussion opened by Finley Gayle, M. D., Richmond.

Nutritional Deficiencies and their Relation to the Clinical Course of Heart Diseases.

WILLIAM B. PORTER, M. D., Richmond.

This study will review the general problems concerned in heart muscle nutrition with special reference to the effect of anemia, insulin deficiency and avitaminosis. The therapeutic implications are emphasized.

Discussion opened by Philip S. Smith, M. D., Abingdon.

Acute Sinusitis in Children. *(Lantern Slides.)*

G. SLAUGHTER FITZ-HUGH, M. D., Charlottesville.

Some experiences with acute sinusitis in children are presented, with a plea for earlier recognition and diagnosis. Treatment as carried out at the University Hospital is outlined. Several case reports are presented to illustrate different complications.

Discussion opened by Charles W. Purcell, M. D., Danville.

Are We Too Sinus Conscious?

MEADE EDMUNDS, M. D., Petersburg.

Sinus trouble has become a very elastic term that is being loosely employed by both doctor and layman to include not only sinusitis but also all types and degrees of nasal pathology.

Discussion opened by Thomas E. Hughes, M. D., Richmond.

Of Sin and Punishment.

JAMES K. HALL, M. D., Richmond.

The thesis attempts to elaborate the fundamental features of the behavior-manifestations of the downward mood-swing, especially in conditions characterized by emotional and mental depression.

Discussion opened by H. C. Henry, M. D., Petersburg.

Prenatal Care.

T. J. WILLIAMS, M. D., Charlottesville.

A discussion of the need, value, standards and procedures of prenatal care is presented. The interpretation and treatment of abnormal prenatal findings are considered.

Discussion opened by A. M. Groseclose, M. D., Roanoke.

Hospitalization by the Group Payment Plan on a State-Wide Basis.

R. W. GARNETT, M. D., Danville.

Various plans for group hospitalization are presented, with the purpose of considering if Virginia is in need of hospitalization by the group payment plan on a State-wide basis.

Discussion opened by Frederick P. Fletcher, M. D., Richmond.

Special Order—Report from House of Delegates.
Induction of President.
Adjournment.

Time limit for papers—fifteen minutes;
Discussions—five minutes.

Papers are the property of the Society and should be handed the reporter immediately after presentation.

All sessions will begin promptly.

Correspondence

Proposed Amendment to the Constitution.

Norfolk, Virginia
August 14, 1937.

TO THE EDITOR:

I enclose the following amendment to the Constitution of the Medical Society of Virginia, to be published in the September issue of the MONTHLY, in order that it may be taken up and acted upon at the October meeting of the State Society:

That ARTICLE IX—TRUST FUND FOR POST-GRADUATE CLINICAL EDUCATION—*be annulled and that all funds now held in trust by this Committee for post-graduate education be used at the discretion of the House of Delegates, on recommendation of the Department of Clinical and Medical Education.*

Very truly yours,
P. ST. L. MONCURE.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. FRANKLIN D. WILSON, 5352 Studeley Avenue, Norfolk.
President-Elect—MRS. JAMES B. STONE, 15 Maxwell Road, Richmond.
Corresponding Secretary—MRS. C. C. SMITH, 1219 West Princess Anne Road, Norfolk.
Recording Secretary—MRS. F. O. PLUNKETT, 2 Riverview Place, Lynchburg.
Treasurer—MRS. REUBEN F. SIMMS, 2502 Hawthorne Avenue, Richmond.
Chairman, Press and Publicity—MRS. W. AMBROSE McGEE, 4107 Kensington Avenue, Richmond.

PROGRAM

Fifteenth Annual Meeting
Patrick Henry Hotel
Roanoke, Virginia October 12, 13, 14, 1937

Every woman attending the Convention is cordially invited to attend these meetings.

Tuesday, October 12th

Registration 5:00 to 8:00 P. M. at the Patrick Henry Hotel.

Every woman is requested to register immediately upon arrival. (Registration fee 25 cents).

8:00 P. M.—Opening meeting of the Medical Society of Virginia.

Wednesday, October 13th

8:00 A. M.—Registration Booth open. Patrick Henry Hotel.

9:00 to 10:00 A. M.—Pre-Convention Board Meeting. Patrick Henry Hotel.

All County Presidents, Presidents-Elect (or Vice-president where there is no President-Elect) and State Officers and Chairmen are expected to attend this meeting.

10:15 A. M. to 1:00 P. M.—Patrick Henry Hotel. GENERAL ANNUAL MEETING—Open to all women attending the Convention.

President—Mrs. Franklin Davis Wilson, Norfolk.
Invocation—Rev. Richard S. Owens, Roanoke.
Address of Welcome—Mrs. J. W. Preston, Roanoke.
Response—Mrs. T. Elmore Jones, Portsmouth.
Report of Committee on Arrangements and Registration—Mrs. C. T. Burton, General Chairman, Roanoke.
In Memoriam.
Minutes Fourteenth Annual Convention—Recording Secretary, Mrs. F. O. Plunkett, Lynchburg.
Roll Call of County Auxiliaries—Mrs. F. O. Plunkett, Lynchburg.
President's Message—Mrs. Franklin Davis Wilson, Norfolk.
President's Announcements.
Reports:

Corresponding Secretary—Mrs. C. C. Smith, Norfolk.
Treasurer—Mrs. Reuben F. Simms, Richmond.
Organization—Mrs. James B. Stone, Richmond
Program and Health Education—Mrs. T. Elmore Jones, Portsmouth.
Finance—Mrs. Richard H. Peake, Norfolk.
Public Relations—Mrs. C. J. Devine, Norfolk.
Hygeia—Mrs. John R. Hamilton, Nassawadox.
Revisions—Mrs. William Lett Harris, Norfolk.
Press and Publicity—Mrs. W. Ambrose McGee, Richmond.
Courtesy—Mrs. J. W. Preston, Roanoke.
Exhibits—Mrs. Henry M. Snead, Petersburg.
Jane Todd Crawford Memorial—Mrs. Lleweleyn Powell, Alexandria.
Historian, Archives and Research—Mrs. Southgate Leigh, Norfolk.
Parliamentarian—Mrs. M. N. King, Norfolk.

County Presidents:

Mrs. H. A. Latane, Alexandria, Auxiliary to Alexandria Medical Society.
Mrs. J. W. Robertson, Onancock, Auxiliary to the Accomac-Northampton Medical Societies.

Mrs. T. Brantley Henderson, Williamsburg, Auxiliary to the James City-New Kent Medical Society.
Mrs. R. D. Caldwell, Lynchburg, Auxiliary to the Lynchburg Academy of Medicine.
Mrs. A. W. Lewis, Aylett, Auxiliary to the Mid-Tidewater Medical Society.
Mrs. B. A. Doggett, Norfolk, Auxiliary to the Norfolk County Medical Society.
Mrs. Thomas N. Hunnicutt, Newport News, Auxiliary to the Warwick County Medical Society.
Mrs. C. W. Lynn, Petersburg, Auxiliary to the Petersburg Unit of the Fourth District Medical Society.
Mrs. W. Ambrose McGee, Richmond, Auxiliary to the Richmond Academy of Medicine.
Mrs. Ira Hancock, Creeds, Auxiliary to the Princess Anne County Medical Society.

Message from Dr. Wright Clarkson, Petersburg, "How the Auxiliary Can Help in the Fight for Cancer Control."

Delegates:
Woman's Auxiliary to American Medical Association—Mrs. James B. Stone, Richmond.
Woman's Auxiliary to Southern Medical Association—Mrs. Southgate Leigh, Norfolk.
Unfinished Business.
New Business.
Reports:
Committee on Resolutions.
Committee on Credentials.
Nominating Committee—Mrs. M. N. King, Norfolk.
Election of Officers.
Minutes.

1:30 P. M.—Country Club—Auxiliary Luncheon (Subscription). Honoring Mrs. Augustus S. Kech, Altoona, Pa., President, Auxiliary to American Medical Association.
Greetings:
Dr. J. Morrison Hutcheson, Richmond, President, Medical Society of Virginia.
Dr. H. H. Wescott, President, Roanoke Academy of Medicine.
Dr. G. F. Simpson, President-Elect, Medical Society of Virginia.
Members of Advisory Council:
Dr. Fletcher J. Wright, Petersburg.
Dr. P. St. L. Moncure, Norfolk.
Dr. James B. Stone, Richmond.
Address:
Mrs. Augustus S. Kech, Altoona, Pa., President, Auxiliary to American Medical Association.
Installation of Officers conducted by Mrs. M. N. King, of Norfolk.
Presentation of Gavel.
Inaugural Message of President—Mrs. James B. Stone, Richmond.
Adjournment.

Post-Convention Board Meeting, Mrs. James B. Stone, presiding, Patrick Henry Hotel. Time to be announced.

Entertainment

To be announced later.

Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

Merck & Co., Inc.
Ampules Cebione Sodium Solution, 2.1 cc.
Tablets Cebione, 0.025 Gm.

E. R. Squibb & Sons.
Tablets Digitalis—Squibb, ½ cat unit.
Capsules Powdered Digitalis—Squibb, 1½ grains.

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Silver Picrate.—Silver trinitrophenolate.—$C_6H_2(OAg)(NO_2)_3\dagger H_2O$).—Silver picrate has actions and uses similar to those of the other simple silver salts. It is available in crystals for making solutions. It is also used in the form of a compound powder for the treatment of Trichomonas vaginalis vaginitis. Another dosage form is intended primarily to be used as an adjunct in the treatment of this condition—vaginal suppositories. Protracted use of this compound over a long period may possibly give rise to argyria because of its silver content and nephritis because of its picric acid content.

Combined Diphtheria Toxoid-Tetanus Toxoid, Alum Precipitated, Lilly.—A combination of diphtheria toxoid and tetanus toxoid which has been precipitated with alum. The amount of each ingredient in a single dose is the same as that present in a single dose of the individual marketed products. Combined diphtheria toxoid-tetanus toxoid, alum precipitated, is recommended for the production of active immunity of diphtheria and tetanus. It is marketed in packages of one immunization treatment, containing two 0.5 cc. vials. Eli Lilly & Co., Indianapolis. (*J. A. M. A., July* 3, 1937, p. 29.)

Tablets Carbarsone, 0.05 Gm. (¾ grain).—Each tablet contains carbarsone (New and Nonofficial Remedies, 1937, p. 93), 0.05 Gm. (¾ grain). Eli Lilly & Co., Indianapolis.

Tablets Carbarsone, 0.25 Gm. (3¾ grains).—Each tablet contains carbarsone (New and Nonofficial Remedies,

1937, p. 93) 0.25 Gm. (3¾ grains). Eli Lilly & Co., Indianapolis.

Suppositories Carbarsone 0.12 Gm. (2 grains).—Each suppository contains carbarsone (New and Nonofficial Remedies, 1937, p. 93) 0.12 Gm. (2 grains). Eli Lilly & Co., Indianapolis. (*J. A. M. A.*, July 17, 1937, p. 209.)

Sulfanilamide.—*p*—amino-benzene-sulfonamide.—The amide of sulfanilic acid. Sulfanilamide has been used primarily in infections due to beta-hemolytic streptococci, especially in the treatment of puerperal fever, erysipelas, hemolytic streptococcus septicemia, streptococcic sore throat and surgical infections with hemolytic streptococcus. Present studies suggest that the drug may eventually prove useful in meningococcic and possibly in gonococcic infections. It has been suggested that sodium bicarbonate may prove useful in combating the acidosis which sometimes follows the administration of the drug. Jaundice and urticaria have also been reported as undesirable side effects. Certain studies indicate that sulfhemoglobinemia may ensue in some individuals especially after intensive or continued administration of sulfanilamide. There is also a possibility that methemoglobinemia and granulocytopenia may follow such therapy and there have been reports of hemolytic anemia following sulfanilamide administration.

Sulfanilamide—Merck.—A brand of sulfanilamide—N. N. R. It is supplied in the form of tablets, 5 grains. Merck & Co., Inc., Rahway, N. J.

Sulfanilamide—Squibb.—A brand of sulfanilamide—N. N. R. It is marketed in the form of tablets, 5 grains. E. R. Squibb & Sons, New York.

Book Announcements

New Books at Medical College of Virginia.

The following books in the College Library are available to our readers, the only cost being return postage:

Osman, A. A. ed.—Original Papers of Richard Bright on Renal Disease.
Perla & Marmorston—The Spleen and Resistance.
Pincus, G.—The Eggs of Mammals.
Pollock & Davis—Peripheral Nerve Injuries.
Potter, E. S.—Serpents in Medicine, Art and Symbolism.
Randall & Goodrich—Principles of College Library Administration.
Read, J.—Prelude to Chemistry.
Rhinehart, D. A.—Roentgenographic Technique.
Roberts, H.—Euthanasia and Other Aspects of Life and Death.
Rogers, C. H.—Textbook of Inorganic Pharmaceutical Chemistry.
Ross, E. A.—Seventy Years of It: An Autobiography.
Scoville & Powers—The Art of Compounding.
Shands, A. R.—Handbook of Orthopedic Surgery.
Shields, C.—Hay Fever.
Shyrock, R. H.—Development of Modern Medicine.
Simon, P. W.—Fundamental Principles of a Systematic Diagnosis of Dental Anomalies.
Stern, F.—Applied Dietetics.
Stokes, J. H.—Dermatology and Syphililogy for Nurses.
Taylor, F. S.—The World of Science.
Thorndike, L.—Science and Thought in the 15th Century.
Thornton & Knauth—The Social Component in Medical Care.
Topley & Wilson—Principles of Bacteriology and Immunology.
Von Oettingen, W. F.—Therapeutic Agents of the Pyrrole and Pyridine Group.
Wesson & Ruggles—Urological Roentgenology.
Whitmore, F. C.—Organic Chemistry.
Whitwell, J. A.—Historical Notes in Psychiatry.
Williams, E. E.—Keeping Campers Fit.
Wolf, F. A.—Tobacco, Diseases and Decays.
Young, M., *et als.*—The Relationship of the Iodine Contents of Water, Milk and Pasture to the Occurrence of Endemic Goitre in Two Districts of England. (Med. Res. Council Spec. Rep. Ser. No. 217.)

Synopsis of Digestive Diseases. By JOHN I. KANTOR, Ph.D., M.D. Associate in Medicine, Columbia University; Gastroenterologist and Associate Roentgenologist, Montefiore Hospital for Chronic Diseases, New York. The C. V. Mosby Co., St. Louis. 1937. 12 mo. of 302 pages. Illustrated. Cloth. Price $3.50.

To quote the author, "This book is an attempt to present simply, clearly and concisely the essential facts concerning the diseases of digestion." In this he has succeeded admirably. The opening chapters deal with the methods of procedure in diagnosis and the fundamentals of gastrointestinal therapeutics. He then presents an orderly discussion of gastrointestinal diseases, illustrated by most excellent diagrammatic sketches where these are indicated. He includes a discussion of cholera and typhoid fever under diseases of the small intestines, and the specific dysenteries in the chapter on colonic diseases.

A section is devoted to diseases due to intestinal parasites and, most interestingly, a section to digestive symptoms in extragastric diseases. This feature is commonly omitted in older works.

From a critical standpoint, the author tends to devote too much space to the rarer diseases and anomalies and too little to discussion of functional disturbances which make up such a large part of clinical practice.

The book can be particularly recommended as a guide to those who teach gastroenterology.

T. D. D.

Virginia Medical Monthly

Founded by LANDON B. EDWARDS, M. D., April, 1874
Owned by MEDICAL SOCIETY OF VIRGINIA since November, 1919
WYNDHAM B. BLANTON, M. D., *Editor*
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Editorial

Calcium and the Teeth.

Much nonsense has been perpetrated regarding food deficiency and diseases connected with it. This statement has been made before and it would be unnecessary to repeat it but for the fact that the nonsense continues even among the medical profession. For example, as an editorial in the *Journal of the American Medical Association* recently pointed out, calcium is still being given in large quantities to those with dental caries and to pregnant mothers on the assumption that a deficiency in this element exists in their conditions. It seems pretty well established that when an average well-balanced diet is available calcium therapy is never necessary, and that when imbalance so far as calcium is concerned does exist milk represents the best method of making good the deficiency. This does not mean that there is no relationship between dental caries and calcium metabolism but that other important factors affect the relationship. In fact the addition of vitamin D during pregnancy seems to be of more importance than increasing the intake of calcium or phosphate.

Past the Meridian.

We summarize the amplification of another as regards old age: Less hair, less appetite, less imperious urge, less ambition, less pain, less headache, less migraine, less indigestion, less worry, less jealousy, less hatred, less difference, less money, less sex urge, less restlessness. More avoirdupois, more possessions, more friends, more children, more help, more wisdom, more patience, more knowledge, more influence, more vision, more faith, more godliness.

A B C's of Tbc.

Few human beings escape tuberculous infection. Childhood tuberculosis represents initial infection, adult tuberculosis represents reinfection and its reactions are essentially allergic. Tubercle testing is a method of allergic diagnosis. There are many methods of testing: Calmette's, Moro's, Von Pirquet's and the intracutaneous test of Mantoux. There are many tuberculins: T. A., T. O., T. R., T. E., and last, P. P. D. A positive tuberculin test indicates only the previous implantation of a tuberculous infection and the present allergic state of an individual to the protein fraction of the bacillus to which he has become sensitized. Rarely a tuberculous individual reacts negatively to tuberculin. The laws of allergy explain this. In the great majority of cases a positive reaction indicates tuberculosis. From this point the rules of procedure for the physician in charge are as follows: positive reactors are X-rayed; clinical tuberculosis discovered in this way requires investigation of home surroundings; all contacts should be tuberculin tested and the positive reactors among them clinically studied and X-rayed. In this way the open case of tuberculosis, often more important than the secondary case first discovered, is brought under public health control. It is obvious therefore that according to

the modern conception of tuberculosis the disease presents epidemiological as well as diagnostic problems.

X-ray of the Abdomen in Lead Colic.

The value of X-ray in the study of the intestinal symptomatology of lead colic has recently been emphasized by W. J. Pickett *et al* in the *Illinois Medical Journal*. Roentgenograms made during an acute attack of lead colic established the fact that a dynamic obstruction exists "produced in the small intestine by amotile, tensely spastic hypertonic areas." Experimentally it has been shown "that lead acts on the musculature of the small bowel of the cat in such a way as to produce areas of increased tonus and decreased motility, and that colic is probably due to a hypertonic peristaltic wave approaching such an amotile spastic area."

At it Again.

If allergy were not such a roving, restless, exploring, sassy member of the family of medical specialties it would probably be on better terms with internists and those powers who essay to mold medical thought and practice. The recent claims of Goodall and Power of Montreal will not help its critics to feel it has in any way settled down, for these workers intimate that "cases of chronic menorrhagia, and metrorrhagia, cases of dysmenorrhea, cases of leucorrhea, sometimes associated with mucous colitis, at other times with vaginitis and intertriginous vulvitis, may have an allergic basis."

Vaccine for Influenza.

We have long waited the results of the experiments of Dr. Thomas Francis, Jr., of the Rockefeller Institute, upon a vaccine suitable for the prevention of influenza. It is now understood that a group of human volunteers have received this new virus vaccine and that a high titre of antibodies was subsequently demonstrated in their blood, sufficiently high in fact to protect mice against the virus of influenza. How long these antibodies will continue in the blood and how effective they will prove in the face of an influenza epidemic is another question. The medical profession naturally awaits with interest the time when this virus vaccine will be available for general use for the immunization of persons against influenza and the common cold.

The Nobel Prize.

Last year the Nobel Prize in medicine was awarded jointly to Sir Henry Hallett Hale, Director of the National Institute of Medical Research in Hampstead, London, and to Dr. Otto Loewi, Professor of Pharmacology in the University of Graz, Austria. Although these investigators were widely separated geographically and were working independently, their contributions were complementary. Their discoveries had to do with acetylcholine, an apparently essential substance in the chemical transmission of nervous activity. Acetylcholine is a chemical messenger liberated thousands of times a day by the brain in minute quantities. Every time a muscle moves it does so in response to acetylcholine, a chemical bridge between the central nervous system and the end organs of response.

Department of Clinical and Medical Education of the Medical Society of Virginia

PEDIATRICS: During the month of July the clinician in Pediatrics, Dr. Jay M. Arena, conducted postgraduate courses in the northern part of Virginia. Meetings were held at Winchester, Woodstock, and Front Royal. In spite of the hot weather the attendance was good and the clinician reported 124 visits and 42 consultations. As in the case of previous courses, questionnaires have been sent to the doctors attending on which they may record their reactions to the course. A report on the questionnaires will be made in the October issue of the MONTHLY. During the month of August Dr. Arena is conducting a course in the southwestern part of the State with centers at Galax, Wytheville, Marion, and Abingdon.

We regret to report that Dr. Arena has resigned as clinician to take effect on September 1. At that time he will return to Duke University where he has been appointed Associate Professor of Pediatrics in the Medical School. During the late summer or

early fall he will attend the Conference of the International Pediatrics Society in Rome.

OBSTETRICS AND GYNECOLOGY: During the month of July postgraduate courses in Obstetrics and Gynecology were conducted by Dr. Shamburger in the counties of Prince Edward, Nottoway, Lunenburg, and Charlotte. Weekly meetings were held at Farmville, Blackstone, and Charlotte Court House. A complete report on the courses will be made in the October issue of the JOURNAL. During the month of August Dr. Shamburger will join Dr. Arena and offer a combination course in Pediatrics and Obstetrics and Gynecology in the southwestern part of the State. This is the first time a combination course has been offered. It is hoped that the inclusion of lectures on two subjects—Pediatrics and Obstetrics—at the same meeting will result in better attendance. If this meets the approval of the doctors, the practice will be continued.

DEPARTMENT MEETING: A meeting of the Department of Clinical and Medical Education has been called for August 23* in Richmond to consider the election of a successor to Dr. Arena. At that time other matters of business will be attended to and the annual report of the Executive Secretary will be made. The chairman of the Department of Clinical and Medical Education will be glad to receive from any doctors interested any suggestion that they would like to make for the program of the Department during the coming year.

JOHN ALEX RORER,
Assistant Executive Secretary.

*This report was closed August 16, 1937.

Proceedings of Societies

The Augusta County Medical Association

Held its annual meeting at the Stonewall Jackson Tavern just outside of Staunton, Va., on August 4. At the business session, delegates were named for the Roanoke meeting of the State Society and the following officers were elected for the coming year: President, Dr. W. Alex. Murphy, Staunton; vice-presidents, Dr. S. H. Garst of Staunton, Dr. I. M. Nuckols of Mt. Sidney, and Dr. Geo. H. Thomas of Staunton; secretary, Dr. Lyle S. Booker of Waynesboro; and treasurer, Dr. J. E. Womack (re-elected) Staunton. The annual dinner following the meeting was attended by about thirty-five members.

The Mid-Tidewater Medical Society

Held its tenth anniversary meeting at the home of Dr. H. A. Tabb at Gloucester C. H., on July 27, the doctors of Gloucester County entertaining the physicians and guests at lunch there. Twelve members and a number of visitors registered attendance. Dr. Clarence Campbell of Sparta presided at the meeting at which the secretary, Dr. M. H. Harris of West Point, gave a history of the Society for the ten years of its existence and stated that nearly all doctors in the counties included are members. Four new members reported for this year are: Dr. R. D. Bates, Jr., Newtown; Dr. A. L. Van Name, Jr., Center Cross; Dr. S. E. Clinard, Gloucester, C. H.; and Dr. J. F. Phillips, Deltaville.

The scientific paper presented at this meeting was on "Digitalis" by Dr. Charles C. Haskell of Richmond. Dr. J. Morrison Hutcheson, President of the Medical Society of Virginia, also of Richmond, spoke of the next meeting of the Medical Society of Virginia, urging those present to attend.

Deaths of Dr. Blair Spencer, Dr. J. N. DeShazo, this year's president, and Dr. F. F. Davis were reported and a committee was appointed to present suitable resolutions on their deaths at the next meeting to be held in October.

The Dickenson-Buchanan County Medical Society

Met at the Grace Richardson Hospital, Grundy, Va., on the evening of August 10, on which occasion delegates were elected to the coming meeting of the State Society. After discussion of local medical topics, including minimum fees, delicious refreshments were served. Those present were: Drs. A. S. and J. S. Richardson, J. G. Storie and C. H. Reagan of Grundy; Paul Q. Daniel and W. E. Vermilya of Big Rock; W. A. Carr and D. F. Love of Harman; R. L. Phipps of Clintwood; G. C. Snead of Clincho, and T. C. Sutherland of Haysi.

The next meeting will be held at Haysi, Va., on September 7.

T. C. SUTHERLAND,
Secretary-Treasurer.

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News Notes

Are You Going to Roanoke?

This is the question which will be asked of many Virginia doctors during the next few weeks and we hope the answer will be in the affirmative, for we feel all members of the Society will feel fully repaid for attending.

Of great interest will be the clinics sponsored on Tuesday afternoon by the Roanoke Academy of Medicine, to be conducted by Dr. Frank H. Lahey of Boston and Dr. W. McK. Craig of Rochester, Minn. On Tuesday evening, Dr. Russell Cecil of New York, invited guest, will give his address, following that by our President, Dr. J. Morrison Hutcheson of Richmond. The other guest, Dr. Thomas Parran, Surgeon General of the U. S. Public Health Service, will speak before a general meeting early Wednesday afternoon. Later, there will be Round Tables—eight in all—on such a variety of subjects that every member should find something of special interest. These are replacing the usual symposia. Papers will be presented by members in two sections on Wednesday morning, a couple on Wednesday afternoon, and another set on Thursday morning. These likewise are on many different topics. The President and the Program Committee announce that *all sessions are to start promptly* and members are urged to be prompt in attending.

In connection with the scientific program, there will also be scientific exhibits of importance which all members are urged to visit. After completing the tour of these, visit the commercial exhibits, for many of the products shown at these are advertised in *your* State journal and you want a better acquaintance with them and the men representing these companies.

A departure from the usual entertainment program has been adopted this year in the form of a subscription get-together dinner on Wednesday evening. There will be a floor show in connection with this and we hope every one will arrange to attend.

Last, but not least for the golfers anyway, there is to be the usual golf tournament on Tuesday morning before the business and scientific sessions begin. This will start at ten o'clock at the Roanoke Country Club and will be a blind handicap.

The ladies will be looked after in the usual excellent way and it is hoped the doctors may bring their wives and daughters. By the way, have you made your hotel reservations? If not, you had better look after this.

Elsewhere in this issue of the MONTHLY will be found the Preliminary Programs for the doctors and the Auxiliary. Also, there is a write-up on Roanoke, Our Convention City. After reading that, we are sure you will not stay home unless the odds are against your getting off.

Here's hoping to see you in Roanoke!

Round Table Discussions.

Especial attention is called to the Round Table discussions to be held at the annual meeting of the Medical Society of Virginia in Roanoke. Since our members are getting more "clinic-minded," some have asked for more of these at the State meeting. To meet this demand, the Program Committee decided to substitute Round Tables for the symposia of former years. As there are to be several of these, with only relatively a small group attending each, no one need mind hearing his own voice asking questions as in the classroom long ago, and finding out other viewpoints on questions with which they have been dealing—in other words, a kind of free consultation.

Leaders of the Round Tables would welcome questions. In order to have more comprehensive answers, it would be appreciated if members would send in questions (signed or unsigned) to the Society's office in advance, and they will be referred to the various leaders as requested. In the Wednesday afternoon section of the program in this issue may be found the list of Round Tables. Look this over before you lay this copy of the MONTHLY aside.

Interesting Meeting in Richmond in September.

Doctors from Boston to New Orleans and from Virginia to Oklahoma will be among the speakers at the Southern Tuberculosis Conference, which meets at the John Marshall Hotel, Richmond, September 29th and 30th and October 1st. The Conference will be welcomed by Governor George C. Peery and the thirteen Southern States will be represented in the gathering.

A wide range of topics will be covered in the three-day program, including collapse therapy, non-tuberculous lung conditions, tuberculosis in the negro, childhood tuberculosis and tuberculosis in the pre-natal mother and post-natal child. Various aspects of tuberculosis and programs for the control of the disease will be considered in the non-medical section of the Conference.

Dr. Richard H. Overholt of The Lahey Clinic, Boston, will speak on Thoracoplasty; Dr. Frank S. Johns of Richmond on Phrenic Nerve Surgery and Allied Operations; Dr. Leroy Gardner of Saranac Lake on Pneumoconiosis; and Dr. David I. Smith of Duke Medical School on Mycotic Lung Infection.

Dr. Frank S. Johns is chairman of local arrangements, assisted by Dr. Dean B. Cole, Mrs. H. Laurie Smith, Mrs. Warren T. Vaughan, Miss Ellen H. Smith and Mrs. Edmund Strudwick, Jr., with their committees.

The Virginia Tuberculosis Association, 504 Atlantic Life Building, Richmond, will mail programs on request.

The International Assembly of the Inter-State Postgraduate Medical Association of North America,

Under the presidency of Dr. John F. Erdmann of New York, will be held in the beautiful new public auditorium of St. Louis, Missouri, October 18, 19, 20, 21 and 22, with pre-assembly clinics on Saturday, October 16 and post-assembly clinics, Saturday, October 23 in the hospitals of St. Louis.

The aim of the program committee, with Dr. George Crile as chairman, is to provide for the medical profession of North America an intensive postgraduate course covering the various branches of medical science. The program has been carefully arranged to meet the demands of the general practitioner, as well as the specialist. Extreme care has been given in the selection of the contributors and the subjects of their contributions.

The St. Louis Medical Society will be host to the Assembly and has arranged an excellent list of committees who will function throughout the Assembly.

A tentative list of the distinguished teachers and clinicians who will take part on the program may be found on page 2 of the advertising section of this JOURNAL.

A most hearty invitation is extended to all members of the profession who are in good standing in their State or Provincial Societies to be present. A registration fee of $5.00 will admit each member to all the scientific and clinical sessions.

For further information, write Dr. W. B. Peck, Managing-Director, Freeport, Illinois.

Changes in State Hospital Board.

Mr. Shirley Carter, chairman of the State Hospital Board, died at his home in Winchester, Va., on August 9th, following a short illness, and Mr. Thomas Hogshead of Staunton has been appointed by Governor Peery to fill this vacancy on the Board. State Senator Morton Goode of Dinwiddie County, has been named to succeed Mr. Carter as chairman.

Dr. Kinloch Nelson,

Richmond, Va., announces the opening of his offices on September 1st, at 1209 West Franklin Street, this city, where he will be engaged in the practice of internal medicine.

Medical College of Virginia News.

The 100th session of the Medical College of Virginia wil open September 17 for registration. Freshmen in the schools of medicine and denistry will register on September 7, thus giving first year students in these two schools two weeks' longer term. A large enrollment is anticipated.

Dr. Harvey B. Haag, professor of pharmacology, attended the annual meeting of the American Pharmaceutical Association, and gave a paper on "Pharmacology of Propylene Glycol."

The Medical Unit of the Reserve Officers' Training Corps has been reestablished at the college and Lieutenant Colonel E. B. Maynard will report for duty on September 1. Last year the work was carried on by Major Sam F. Parker of Fort Monroe, a full-time man not being appointed.

Dr. R. A. Deno of the school of pharmacy is teaching in the summer school of the University of Michigan.

Miss Frances Helen Zeigler, dean of the school of nursing, recently returned from a month's study in England.

Dr. Frank L. Apperly, professor of pathology, spent some time during the summer months at the Mallory Institute of Pathology.

The new dormitory towards which the Public Works Administration made a grant of $140,850.00

is progressing satisfactorily. It is expected that this building will be ready for occupancy about April 1, 1938.

A grant of $300.00 has been received from the Ella Sachs Plotz Foundation of Boston for research work in neurology. This work is being done by Dr. E. H. Ingersoll, associate professor of anatomy. A grant of $800.00 has been received by the department of pharmacology for research on derris from interested New York manufacturers. Dr. Harvey B. Haag, professor of pharmacology, will be in charge of this research.

Dr. J. D. Kernodle of Wilmington, Delaware, has been appointed assistant in pathology and reported for work on July 15. Dr. Clair R. Spealman of Saint Louis has been appointed associate in physiology and pharmacology and will join the staff of the college on September 1, 1937.

Contracts have been awarded for furniture and fixtures, sterilizing equipment, and metal laboratory equipment for the new clinic and laboratory building now nearing completion.

Doctors Form Partnership.

Dr. C. S. Dodd and Dr. J. E. Hamner announce the formation of a partnership for the practice of eye, ear, nose and throat, with offices at 207-214 Union Trust Building, Petersburg, Va.

Dr. Dodd has been practicing in Petersburg for a number of years. Dr. Hamner was engaged in this specialty in Rainelle, W. Va., for some time and spent the last eighteen months on this service at Memorial Hospital, Richmond, Va.

Appointment by State Health Department.

Dr. W. W. Fuller, graduate of the Medical College of Virginia, has been appointed Assistant Health Officer of the Arlington County Health Department, with headquarters at Arlington, Va.

The American Public Health Association

Is to hold its sixty-sixth annual meeting and nineteenth annual health exhibit at Hotel Pennsylvania, New York City, October 5 to 8. Several related societies will meet with the Association as usual.

Dr. Reginald M. Atwater, executive secretary, 50 West 50th Street, New York City, will gladly give details in regard to the meeting.

Dr. R. Campbell Manson,

Of Richmond, Va., after a year with the State Health Department, is now associated with Dr. Thomas W. Murrell, 17 East Grace Street, this city, in the practice of dermatology and syphilology. Dr. Manson, who graduated from the Medical College of Virginia in 1934, served at the Retreat for the Sick Hospital in Richmond, and the Buxton Hospital in Newport News, for a year each.

Graduate Fortnight of New York Academy of Medicine.

The 10th annual graduate fortnight of the Academy will be held November 1-12, inclusive, the subject this year being "Medical and Surgical Disorders of the Urinary Tract." The program comprises hospital clinics in the mornings and afternoons, discussions of various aspects of the general subject by prominent clinicians who are recognized authorities at the evening sessions, and a comprehensive scientific exhibit. Demonstrations will be held at regular intervals in this exhibit.

The medical profession is invited to attend, the registration fee being $3.00. A complete program and registration blank will be mailed on request to the Academy at 2 East 103rd Street, New York City.

The Academy of Physical Medicine

Will hold its fifteenth annual meeting at the Hotel Walton, Philadelphia, October 19, 20, 21. The Academy, which is international in scope, will present a scientific program based on reports of the most recent research and practice of the various specialties. In addition to the lectures, demonstration clinics will be held at the Hospitals of the University of Pennsylvania, Jefferson Medical College, and Temple University.

A copy of the program may be had by writing William D. McFee, M. D., Chairman, Committee on Program and Publication, 41 Bay State Road, Boston, Mass.

Married.

Dr. Ludwell F. Lee of Stafford County, Va., and Miss Mary Nell Woolfolk of Bowling Green, Va., July 30.

Dr. William Ribble Pretlow and Miss May Fletcher Tiffany, both of Warrenton, Va., July 24.

Dr. James William Elliott, class of '36, Medical College of Virginia, and Miss Frances Love Jackson of Lebanon, Va., early in August. Dr. James Elliott it now associated in practice with his brother, Dr. W. C. Elliott, at Lebanon.

Dr. Clifford H. Beach

Announces the opening of his offices for the practice of internal medicine at 1209 West Franklin Street, Richmond, Va., on September 1.

The Pan American Medical Association

Announces that it has chartered the steamship *Queen of Bermuda* for its seventh Cruise Congress to Havana and the West Indies, sailing from New York on January 15, 1938. The main part of the Congress will be held in Havana where there will be three days of scientific sessions with operative clinics. Meetings will be arranged with colleagues at others ports of call, program for which will be published in the near future. Further information may be obtained from the Pan American Medical Association at 745 Fifth Avenue, New York City.

To America's Schools—Your Health!

During the coming fall, winter and spring, the Voices of Medicine will for the fifth season salute the people of America, with the toast "YOUR HEALTH." This is the well-known title of the radio program of the American Medical Association and the National Broadcasting Company. This year, the salutation will be addressed particularly to the teachers and students in the Junior and Senior high schools, and the programs, to be announced in advance in *Hygeia,* The Health Magazine, will be on the air while schools are in session, so that the program may be utilized directly in the thousands of schools which now have or soon will have radio and public address systems reaching the classrooms. To teachers, students and stay-at-homes, the American Medical Association and the National Broadcasting Company will address their message of health education with the familiar musical theme "Hale and Hearty," written especially for the program, and the toast, "To America's Schools, YOUR HEALTH!"

Syphilis Posters Available.

To assist in bringing before the public the effort being made to eradicate syphilis, the Division of Venereal Diseases of the U. S. Public Health Service has prepared a set of six educational posters. It is believed these posters will be of assistance to physicians who wish to take part in this activity, and they may be obtained from the Superintendent of Documents, Washington, D. C., at 75 cents per set.

Dr. V. L. Kelly,

For the past seven years connected with the staff of Blue Ridge Sanatorium, Charlottesville, Va., resigned on August 1 to become a member of the medical staff of Pinecrest Sanatorium, Beckley, W. Va., and entered upon his new duties at once.

Release of the First Supplement to the U. S. P. XI.

Under authorization of a resolution by the Pharmacopoeial Convention of 1930 with regard to Supplements, the U. S. P. Committee of Revision and Board of Trustees have prepared and published the First Supplement to the U. S. P. XI.

This First Supplement has just been released and will become official on December 1, 1937. It is a booklet of about 100 pages in a substantial binding and may be obtained from the Mack Printing Company, Easton, Pa., from your wholesale druggist, or from any other distributor of the U. S. P., at $1.00 per copy, postpaid. In this supplement, all of the texts revised to June 1, 1937, are reprinted in full so that there can be no misunderstanding of the authorized changes.

Medico-Military Inactive Duty Training For Reserve Officers.

The next annual Inactive Duty Training Period for medical reserve officers of the Army and the Navy will be held in Rochester, Minnesota, at the Mayo Clinic, under the military supervision of the Surgeon of the Seventh Corps Area (Army) and the Surgeon of the Ninth Naval District (Navy) from October 3 to 16, inclusive.

The meeting is given for reserve officers of the Army and the Navy, and due military credits are given for attendance.

The morning hours are devoted entirely to professional training given by the various departments or sections of the clinic at its several hospitals and institutions. The afternoon hours are devoted to lectures on professional subjects or military medicine. The evening hours are given to lectures by distinguished visitors and the presentation of medico-military subjects.

Dr. P. G. Hamlin,

Recently with Buxton Clinic, Newport News, Va., is now connected with the staff at Crownsville State Hospital, Crownsville, Md.

Nightingale Nursing Home.

Dr. J. Arthur Gallant announces the opening of the Nightingale Nursing Home at 209 West Franklin St., Richmond, Va. This is intended for the

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care and treatment of chronic and convalescent cases where the severity of the condition does not warrant treatment in a General Hospital but yet there is need for nursing and medical care.

The Home is open to all ethical and practicing physicians of the City and nearby communities who wish to use its facilities. The nursing is in charge of a graduate nurse with trained attendants under her supervision.

The building has been remodeled throughout and an automatic heating system installed. Private single rooms and wards for four patients are provided at very reasonable rates, with accommodation for both male and female patients.

Dr. Charles P. Ryland,

Formerly of Binghamton, N. Y., has opened an office at 4901 Massachusettes Avenue, Northwest, Washington, D. C., for the practice of internal medicine. Dr. Ryland is a graduate of the Medical College of Virginia in the class of 1929.

Dr. J. L. Hamner,

Mannboro, Va., has been elected sergeant-at-arms of the American Legion, Post 87, at Amelia, for the year 1938.

American College of Surgeons.

The annual Clinical Congress of the American College of Surgeons will be held at Chicago, October 25-29, with headquarters at the Stevens Hotel. As usual, this meeting will hold great interest for many of our readers.

The National Medical Association,

Composed of Negro physicians, dentists and pharmacists, at its meeting just held in St. Louis, selected Hampton, Va., for its 1938 meeting place. Virginia physicians holding office in this organization are: Dr. W. P. Dickerson of Newport News, vice-president; Dr. John T. Givens of Norfolk, general secretary; and Dr. G. Hamilton Francis of Norfolk, speaker of the House of Delegates.

For Sale—

Southwest Virginia practice, home, office. Eight-room modern home, double garage; large surrounding territory with all roads good. Practice established twenty-five years. Growing town of 700; good high school near house; competition light. Ill health cause of selling. Address "RR," care this JOURNAL. *(Adv.)*

Wanted Assistant—

To work into partnership in Texas. Center of rapid oil development and rice growing. City of 2,000. Gentile, with two years' hospital experience. Not over 30 years of age. Salary to start $200.00 per month, with view to being permanent. Address "Texas" care this JOURNAL, 1200 East Clay Street, Richmond, Va. *(Adv.)*

Obituary Record

Dr. Sydney John Baker,

For more than thirty years prominent in Richmond, Va., as a physician and churchman, died August 7, after an illness of several months. Dr. Baker was an Englishman by birth and seventy-three years of age. He studied medicine at the College of Physicians and Surgeons of Baltimore, from which he graduated in 1890, and practiced for a time in Bedford County, Va., before locating in Richmond. He was connected with his local and State medical organizations and had been coroner for the southside for some years. His wife survives him.

Dr. John Harris Smith,

Floyd, Va., died suddenly on August 9. He was twenty-eight years of age and a graduate in medicine from the Medical College of Virginia in 1934.

Dr. Guy Hart Moates,

Flight surgeon at Langley Field, Va., was killed in an airplane accident near Fort Hoyle, Md., on August 1, just after a visit to his son who was in training at the Citizens' Military Training Camp there. The Major was forty-two years of age and graduated from the University of Nebraska College of Medicine in 1923.